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VALUE PROPOSITION ANALYSIS FOR
SOLID STATE LIGHTING:
A CASE STUDY OF AHMEDALI AHMED ELECTRICAL
CONTRACTING;
MARKETING THE PRODUCT IN THE
KINGDOM OF BAHRAIN

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CHESTER BUSINESS SCHOOL

November 2010

Acknowledgement

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Abstract

Value Proposition Analysis

The proposition given to a product or service in terms of its worth given by a customer is researched and analysed to find the underlying factors contributing to the value. The study is undertaken to investigate the different factors that lays ground for increased 'Customer value' and 'Product Value'.

The research objective is to find the "Value Proposition Analysis for Solid State Lighting: a Case Study AhmedAli Ahmed Electrical Contracting; Marketing the product in the Kingdom of Bahrain"

Most businesses generate profits, when the customers give a certain value(s) to the service/product provided by the business entity. This could involve many attributes to consider. The project overlooks in to this value significantly to understand the attributes that collectively contributes to 'Valued Relation' between the customer and the business.

This is achieved by making effective use of literature suggested by various authors and by employing research strategies to validate the literature through the findings. The research also looks in to the case study organisation to fully understand the capabilities of the company to market the product.

Thus, this analysis will be specifically looking in to the value proposition given to Solid State Lighting by the current UK customers and by clients of AhamedAli Ahmed Electrical Contracting, Kingdom of Bahrain.

However, this analysis must viewed critically, as the product comes at a premium price and the study will be much centred in the Kingdom of Bahrain and cannot be generalised for the other GCC countries or the Middle East.

This study is focused to generate strategies in marketing Solid State Lighting in Bahrain taking A.A.E as the Case Study Organisation understanding the Value Proposition for Solid State Lighting.

Declaration

This work is original and has not been submitted previously for any academic purpose.

Signed

Date

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Chapter 1

Introduction

The chapter explores the background to the research that led the researcher to the research objectives mentioned and its justification for the study. Finally the methodology applied for the same. Subsequently, the section outlines the dissertation stating its flow of investigation followed by some key definitions that is required to appreciate the study.

1.1 Background to the Research

With increased development, considerable resources are spent pertaining to energy, investment and capital. Although, modernisation is inevitable, energy spent in terms of lighting can be extensively saved and compromised, reducing carbon footprint. Universal adaptation of LED Lighting could increase productivity saving energy to considerable levels.

LED Lighting (or known as Solid State Lighting) is an innovative lighting system which utilises just half the electric energy as that of any the other conventional lighting that is currently available. It employs a different and an advanced technology that helps save electric energy at no illumination loss as provided by the conventional lightings (appendix-4). However, this technology comes at a premium price and hence requires a greater analysis in marketing principles and specialised strategies to market the product.

Hence, to carry out the investigation, a specific analysis must be carried out to have an understanding of the value perceived by a customer for a product. This leads to Value Proposition Analysis of the Solid State Lighting.

The researcher's internship with a UK lighting company has helped the study to investigate more about Solid State Lightings and its niceties. Further studies and research was done liaising the different promotions and constraints based on sales. This nourished and enriched my research in finding alternative market strategies and solutions.

1.2 Research Objectives

Solid State Lighting is presently a premium product and comes at a high price. Although, the product could significantly reduce electric energy consumption, initial investment for the product is heavy and would take months (based on the product purchased) to breakeven. The core setback is the price which discourages the sale of the product. This is done by taking an organisation as a Case Study Organisation which intends to market the product; provided compelling results are achieved from this research. Analysis will also be done to understand and realise the value of the services provided by the company and it's market position in services & products.

The problem is resolved by understanding the Value Proposition for the product in the UK which is currently thriving; and in Bahrain which is a fresh market for the product. This also followed by finding the Value Proposition of the services provided the Case Study Organisation using various qualitative and quantitative methods. This is then followed by analysing the market that is targeted for the product sale by using analytical tools suggested in the literature which could in turn help to design marketing strategies.

Hence the research objective is . . .

“Value Proposition Analysis for Solid State Lighting: a Case Study of AhmedAli Ahmed Electrical Contracting; Marketing the product in the Kingdom of Bahrain”

And the research would identify the

1.2.a Value Proposition Analysis for Solid State Lightings in the UK & Bahrain

1.2.b Value Proposition Analysis for the services provided by the Case Study organisation

1.2.c Suitable Market Segment

1.3 Justification for the Research

It has always been extremely difficult to sell premium goods when cheaper substitutes are available in the market; specially when government endows subsidy for the competitive product sales. Although past efforts by Anderson, James, Jain, Dipak, Chitagunta &Pradeep,(1993) had suggested to re-engineer businesses and restructure

organisation; to maintain the competitive edge in marketing. Proposals were also made to develop the infrastructure to analyse the different attributes that could lead to organisational efficiency to gain a differential advantage.

However, such experiments were tend to be short lived and as temporary solutions for a problem that has its claws on something more to than just organisational restructuring or infrastructure. As suggested by Woodruff & R.B (1997) next major competitive advantage would rise from outward orientation towards the customer. Delivering Customer's perceived preference would be the next stage to differential business strategy.

Although, the Case Study Organisation is a small scale firm, the researcher believes that a breakthrough can be achieved by employing specialised literature on Value Proposition Analysis and validating its results from the data obtained through investigation.

1.4 Methodology

The line of investigation was undertaken by means of applying various research techniques such as Case Study Research which makes best use of previous work experience, Ethnographic Research through Interviews, Questionnaire, Observational Research and secondary data from the webspace.

Case Study Research

Whilst working in Bahrain, different trends in electrical energy consumption were observed. Further analysis was done based on their spending trends. Being a participant in the observation, silent scrutiny was done on the trends.

This helped me to gain access to different customer profiles and thereby it helped to understand and realise the different consumer behaviours. This would account for the primary data in creating a perception of the different product attributes such as Price, Product value for the customer, Concern for nature and the efficiency of the product.

Interviews

Telephonic interviews and in-person interviews with corporate(s) and clients were done to understand the various aspects that would govern the value proposition of the

product. Further analysis was done by interviewing the product sources in the UK to verify on the reliability, energy savings and of the products.

Questionnaires

Further to the interviews, questionnaires were handed out to estate managers of certain corporate(s) in UK wherein questions were asked based on their proposition on the value of the product. The questionnaire covered various issues based on LED lighting such as performance of the product, perceptions before purchasing and results after purchasing the product, comparative quality of the product with their previous product, product utility and finally briefly on the marketing aspect employed by the firm to market the product.

Action Research

This was undertaken during my internship with the UK supplier. I had to observe and study the various marketing techniques employed to create a high value proposition by the corporate for the product. Further examination was done to analyse the various factors involved in production and marketing methods used. Other observation employed was on lines in which the firm was regulated as the market for the product is a niche market.

Action Research was also done in finding the market for the product and the services during my previous work experience by the Case Study Organisation.

Limitation in the Methodology applied

Although best efforts were made to full investigation, certain limitations were found along the way. Regarding the feedback from the questionnaire, the information received could be biased to sustain company mutual interests. Further to this, limited knowledge about the client(s) was obtained due to data protection which limits the full understanding of the nature of the clients. Time constraint had also been a major constraint as gauging Value Proposition would require measuring attributes from different angles and factors. This also limits the extensive scope in practical implications.

1.5 Outline of the Dissertation

The research has been presented in five different chapters.

Chapter 1 outlines the background, aims and the core research problems

Chapter 2 discusses the theoretical concepts and frame works that associates with Value Proposition Analysis and the analytical tools that develops the study.

Chapter 3 explains the research strategy and methodologies adopted during the research.

Chapter 4 deals with major findings and data as a result of the research strategies employed

Chapter 5 illustrates the findings from Chapter 4 validating it with the theoretical frameworks and concepts suggested by various authors in Chapter 2. By this, efforts are made to answer the research questions and aims of the study.

1.6 Definitions

Case Study Organisation – AhmedAli Ahmed Electrical Contracting.

The company is used for my case study organisation, as this company would be selling the Solid State Lighting in Bahrain. The company may be abbreviated as A.A.E at times.

Solid State Lighting –

It is also known as Light Emitting Diodes Lighting. Specifically, we use 3rd generation Solid State Lighting, which is the latest in its family of diodes and has greater illumination capacities.

1.7 Summary

The chapter has brought in the research problem and the research aims that is justified. Research definitions, methodologies and its limitations are described briefly along with its justifications. The report is outlined to give the reader a basic idea on how the report would progress.

Chapter 2

Literature Review

This section focuses on the different literature(s) used to critically understand Value Proposition Analysis; and the tools mentioned are proposed, to analyse the market for Solid State Lighting. Review is also done on Market Segmentation and Product Positioning which is essential to realise the specific position in the lighting segment to market the product. Literature on Generic and other marketing Strategies are discussed in depth to fully understand the specialised stratagem required to develop market for the product. Working of Solid State Lighting is also discussed to give reader an idea of its technology and working.

2.1 Value Proposition Analysis

2.1.a Upcoming of the 'Customer Value' Recognition

Since recent times with increased global competition and sluggish growth of the economies from the financial crisis, corporate(s) search for new methods for competitive gain. However, according to Woodruff & R.B (1997), the next major edge for competitive advantage is likely to come from outward orientation towards the customer. This is achieved by realising and meeting the needs of the customer.

Past attempts have been made to maintain the competitive edge; they have largely looked in to the organisation framework for improvement such as quality management, downsizing, business process re-engineering and organisational structuring (Anderson, James, Jain, Dipak, Chitagunta et Pradeep, 2003). It has also been proposed by Slater and Stanley (1996) that the central point must be focussed on business activities that enables them to understand the nature of customer value. This would further aid in advanced customer value and hence able to sustain a competitive edge.

However, such theories proposed needs to be carefully analysed on practical lines and on ethnological terms to fully understand the picture of the Value Proposition Analysis of Solid State Lighting. Although, Anderson et al (2003) promotes corporate restructuring as a solution to gain customer value, this realistically does not achieve the prime goal in attaining customer value (Woodruff & R.B 1997). The gain of such structuring is scaled to limited reach.

Late 1980's witnessed eminent improvements on quality management and organisations learned to improve quality of their products/services and in-house processes. Quality management was also a focus of improvement. These aided imperative performance enhancement (Garvin, 1983; Leonard & Sasser, 1982). However, this armoured internal orientation only.

Albeit, the practices had its' cons in achieving the objective of added customer value. This was reflected on the extent of customer satisfaction (Woodruff & R.B, 1997). Customer Value for a product or otherwise understood as Value Proposition Analysis can be validated to a certain extend by using the Customer Satisfaction Measurements (CSM) which emerged from quality improvement scheme(s) (Slater, Stanley, John & Narver, 1995).

Nevertheless, Woodruff (1997) proceeds to explain that CSM emerged from quality improvement schemes comprises Customer Value(s) to certain extends. He argues that CSM attributes that were intended to increase customer satisfaction. It didn't actually measure customer satisfaction, rather focused more on to reliability of the product and service characteristics. The data collected from the CSM proved that corporate had problems which relates to the organisational performance. Hence, CSM didn't actually improve the customer experience with the product.

According to Kolter and Philip (2000), the organisations failed to keep the relationship between customer and the corporate, whilst maintaining a strong rapport between satisfaction scores and performance. Hence as suggested by Woodruff (1997), quality will no longer serve as the vital component of product or service. This has led to the organisation to the vicious cycle of turning inwardly again by trying to improve the performance with changes such as the ones stated earlier as restructuring, downsizing and re-engineering. After learning the outcomes of previous models in delivering Quality Performance, Slater (1997), Slater, Narver (1995) and Parasuraman (1997) hints that organisations restructured their orientations towards Exceptional Customer Service.

Customer Value Delivery as explained by Woodruff (1997):

“Customer value is a customer’s perceived preference for and evaluation for those product attributes, attribute performances, and consequences arising from use that facilitate achieving the customer’s goals and purposes in use situation.”

Albeit, Parasuraman (1997) argues that this statement provides varied definition outlining the customer value. Customer value is seen by the attributes inherent to or linked through the use to some product, something perceived by customers rather than objectively determined by a seller and these perceptions generally engages what the customer gives up to acquire to receive the product/service along with quality, worth, utility and other benefits. The elements given up by the customer could include price paid, loyalty and time spent for research and buying. This is further supported and explained by Monroe & Kent (1990), Zeithaml & Valarie (1998) and Anderson et al (2003).

2.1.b Value Proposition

For this reason, Value Proposition can be referred as the relative difference between the benefits received with the product/service and the sacrifices (both monetary and non-monetary aspects) for it. This has been consistently supported by authors such as Mazumdar (1993), Lapierre (2000), Zeithaml (1988) and Narver & Slater(1990). However, Mazumdar (1993) adds on by explaining that the concept of perceived value is the extent to which a potential adopter understands the benefits of the new product which could exceed the forfeits associated with the taking up of the product/service and the use of it.

Hence if the Value Proposition were to be formulated (Mazumdar, 1993):

$$\textit{Perceived Value} = \textit{Perceived Benefits} - \textit{Perceived Sacrifices}$$

The implication as stated by Mazumdar is two-fold: Firstly, it implies that the awareness of the benefits can increase the consumer’s perception of the new product/service making it is directly proportional to each other. Secondly, the *Perceived Value* can be increased relatively by reducing or trimming down the *Perceived Sacrifices*.

The non-monetary sacrifices as stated by Lapierre (2000) includes time, energy and effort put into buying the product/service thereby obtaining the product leading to the

building a relationship with the supplier. He further explains that sacrifices are the costs pledged in by the customer sequentially making a deal.

Zeithaml (1998) advocates that Value Proposition as significant tool for the supplier to realise their product and to fully understand how the product can be enhanced to offer increased value to the customers giving the supplier a competitive edge over the others.

However, Mazumdar (1993) argues that the current trend of customers is neither interested in lowest price nor in the impressed by the best product in the market. Rather, they are guided by the decisions influenced by careful assessment on 'what benefits they obtain in exchange for the costs' they incur to acquire and use the product. Hence, as suggested by Lapierre (2000), willingness is greatly prejudiced by greater perceived value, which makes the customer convinced to adopt a new product.

Hence to understand the Value Proposition, Market Analysis needs to be invoked to understand the different scenarios that the product would encounter.

2.2 Market Analysis

2.2.a. P.E.S.T.L.E

Lynch (2006) refers this theory of analysis as a significant tool in moulding strategies by understanding the external environment in which the corporate functions. Doyle, 2003 continues to describe the three elements for analysis: external factors, it's implication and the relative importance to the implications. P.E.S.T.L.E analysis can be used to understand the business environment and thereby aids in making strategies.

The external factors can be listed as follows (Lynch, 2006)

1. Political: The various governmental bodies and its line of work could affect the type of product marketed. The other attributes that could contribute to this factor are the alignments of the corporate with the local and national trading blocks, legislation, government regulations, tax levied and the current industry scenarios.
2. Economic: The various attributes that would contribute to the economic factors are the Consumer Price Index, Total GDP per head inflation, cycality, interest rates, unemployability,

cost of raw materials etc. Doyle (2003) further explains that such economy regulations can greatly influence the marketing techniques employed.

3. Socio-Cultural: Elements such as lifestyle, attitude towards work & local culture, demographic changes, distribution of wealth and environmental protection is crucial in developing strategies.

4. Technological: With technological advancements, adoption of the latest technology is crucial to market products (Johnson & Scholes, 2002).

5. Legal: New regulations are made to ensure local employment, work safety and taxation on corporate(s). This would require further investments in the corporate.

6. Environment: Directives made to protect the environment from wastes, level and type of energy consumed and carbon emissions.

As suggested by Doyle, the implication of each external factor is recorded and reviewed for performance evaluation and strategy formation. Further to this the relative importance of the factors are considered and in conjunction to Time, Type and Dynamics.

Although this theory is supported by other authors such as Muzzucato (2002), Dahlen, Lange & Smith (2010), critique views on the extend of its application is recorded by authors such as Burt, Wright, Bradfield, Cairns & Heijden (2006) suggests that P.E.S.T.L.E has been transformed as the long-established means of evaluating an external environment, with emergence of new frame works which incorporates many attributes that would rightly evaluate the business environment.

2.2.b. S.W.O.T

Every marketing strategy employs S.W.O.T as a tool to comprehend the different Strengths, Weaknesses, Opportunities and Threats to build line of action (Hill, T., Westbrook, 1997). Hence, Hill et al promotes the notion of having the target market or objective before applying S.W.O.T analysis, thereby being able to apprehend the different possibilities to expand the market techniques.

Kitts, Edvinsson and Beding (2000) goes further to make a query 3-D table being able to envision the dynamic performance of comparable objects that elements the market. Changes in the market are continually categorized and the projects that involve risks are spotted with the aid of the graph.

An unknown author in his webspace (<http://tutor2u.net/business/strategy>), classifies S.W.O.T as the tools to find the Internal & External factors and Positive & Negative factors. He proceeds to tabulate the attributes that elements

Strengths as *Management, Production Quality, Leading Brands and Technological Skills*.

Weaknesses as *Absence of Important skills, Poor Distribution, Unreliable Product, etc.*

Opportunities as *Technological Advancements, Lower Personal Tax, Customer tastes, etc.*

Threats as *Tax increases, Governmental Policies, Geographical Markets, etc.*

However, works by Amrstrong (1996) argues that certain factors stays common between the S.W.O.T elements which makes it difficult to scrutinise critically. Authors from Business Learning sites such as oxlearn.com describe S.W.O.T as merely a guide and not a prescription to the corporate problem. They analyse S.W.O.T as very subjective and very primitive a tool to put in use. D. Hunger, Thomas and L. Wheelen (2007) argues that the analysis results to lengthy lists of both negative and positive attributes of the business, however, it does not necessarily reflect on the priorities.

In addition to the market analysis, market positioning is also necessary to promote the product due to its *unique nature* and *premium costs*.

2.3 Market Segmentation

Segmentation is a method of identifying a sub group of buyers with similar tastes and characteristics (D Cravens, 2002). It can be used to market products with niche characteristics. The opportunity for segmentation occurs when different buyer's responses differs. This permits *Market Segmentation* (Onkvisit & Shaw, 2004). Each segment has distinct characteristics accustomed to customer needs and tastes (D Cravens, 2002).

Segmentation as suggested by Groucutt, Leadley & Forsyth (2004) is identified by (a) finding a closer match between the buyer's preferences and organisational capabilities and (b) comparing organisational strength and weaknesses with competitors.

This can also be used by organisations to market their products to create a unique selling attribute that could assist the sales of the product they manufacture (Cravens, 2002).

Albeit, Doyle & Stern (2006) argues that segmentation is successful only if it meets five criteria such as: (1) Effectiveness, (2) Profitability, (3) Accessibility, (4) Identifiable, (5) Actionable.

2.3.a Market Targeting & Product Positioning

Targeting and Product Positioning as recommended Cravens (2002) is a combination of organisational actions taken to meet the needs of the market segment. Thereby, redesign the product to meet the costumed features; satisfying the segment unique tastes. It consists of products, supporting services, distribution, pricing and promotion components. (Groucutt, Leadley & Forsyth 2004).

Positioning is usually done on for a variety of reasons. One of the reasons quoted by Doyle & Stern (2006) is the choice of the firm to decide where to compete and the choice of different competencies, on how it will compete.

However, Doyle & Stern (2006) have also made comments on the causes for inadequate positioning. Inadequacies such as (1) Segment already unattractive, (2) Quality & Features does not match the required standards/appeal, (3) product costs being too high.

Albeit, Carven (2002) proposes that precise understanding of the market's specialised needs is inevitable to market the product successfully. Hence the investment put in to the research and development would be high and must be recovered immediately with increased product sales. Onkvisit & Shaw (2004) supports this motion as the competitors could easily replicate the product and market similar products without any research, and thereby be able to sell the niche product at a cheaper price.

2.3.b Segmentation Factors

Segmentation can be based on Demographic and Psychographic factors. Market Segmentation is done for a variety of reasons. Small firms use this as an opportunity to focus closely on buyer's needs so that they can easily customise their products to generate more business. However, large firms use this strategy to protect their market position (Kotler, Philip, Armstrong & Gary, 2004).

The other factors suggested by Doyle and Stern (2006) is the better match of customer needs, enhanced profits contented in the segment, enhanced opportunities for growth, retention of customers and innovation. The other attributes that would help contribute to segmentation is the capability of the Business, Profitability, Current & Potential Growth, Segment Size and Segment Growth (Kotler and Philip, 2002).

Nevertheless, much research and assessments needs to be considered in realising the niche market and its potential in generating the capital covering the research and manufacturing costs (Kotler et al, 2004). Another potential threat that the segmented market face is the issue of price sensitivity and the commitment the focused customers would give in to sustain the market (Craven, 2002).

2.3.c Differential Advantage

Kotler et al 's (2004) works suggests that with higher market share, higher profits and competitive edge is developed with segmentation. This would help in creating increased customer benefits and thereby generate more customers for the customised and unique product. This would in turn evolve a better sustainability and there by generate more profits. Doyle and Stern (2006) proposes this to be a unique small-scale monopoly for the product.

However, this is subjected to market risks which is varying in time (Craven, 2002).

2.4 Marketing Strategy

Doyle & Stern (2006) advocates the need for marketing strategy as it is the "Philosophy that integrates the activities and the functions of an organisation to get satisfied customers for a firm's growth, profit and security." This includes segmenting the

market, targeting the specialised markets, planning and positioning it. This, thus helps in market penetration, sustainability and growth. This is essentially required for marketing a niche product such the Solid State Lighting, which is essential in a service sector.

Strategic Marketing is defined by Lynch (2006) as “Identification of the purpose of organisation and the plans and actions to achieve it. Its the match between the external and internal capabilities and relationships of the organisation. Its response to social and economic environment in which it operates and finding the market opportunities, experimenting and developing competitive advantage.”

2.4.a Generic Strategies

Lynch (2006) records Prof. Porter’s work in classifying targets as Broad and Narrow targets in the market. These generic strategies can hence be classified as Competitive Scope and Competitive Advantage. Competitive Scope/Broad Targets can yet again classified as Cost Leadership and Cost Differentiation. Whereas Competitive Advantage would generally enclose the focus/niche market.

2.4.b Elements for Strategic Decisions

Suggested by Lynch (2006), the strategic decisions can be broadly structured as

Analysis -> Development -> Implementation

1. Sustainable Decisions
2. Development Processes to deliver strategies
3. Offer Competitive Advantage
4. Exploit linkages between organisation and environment: links that aid superior performance.
5. Vision – Agility to move the organisation forward in a significant way.

However, Onkvisit & Shaw (2004) in their literature suggests certain limitations to strategising. These could be the changing customer needs and the scale of variations in their needs. Young & Andrew (2004) argues that the scale of damage when a business plan goes wrong would be extreme and hence would take more investments and radical changes to

cover back the losses. Doyle & Stern (2006) supports the same by citing examples of businesses that went bankrupt by experimenting strategies which went wrong.

2.5 Solid State Lighting

Solid State Lighting is the combination of two types of semiconductor devices fused together to form an Light Emitting Diode. The Light Emitting Diode is device that is forward biased diode. It is a combination of two semiconductor materials which has two different characteristic properties fused together. When the device is powered with a Direct Supply electric current the electrons are injected in to the device, which accelerates the electrons to jump in to holes discharging energy in the form of photons. This is known as electroluminescence. However, the colour of the light would largely depend on the energy-gap of the semiconductor. The resulting light is known to be as LED Lighting or also known as Solid State Lighting. (Schubert, 2006).

One of the key benefits of the LED lighting is that, they operate in a very low voltage and increase the efficiency and with no compromise in efficacy (Held, 2008). The other advantages include the lower power consumption and the output per watt compared to the incandescent counterparts (Kelly, 2004).

2.5.a Key Advantages of Solid State Lighting

Held (2008), put forwards that LED lighting emits more light per watt compared to their incandescent and fluorescent lamps. And unlike the counterparts, the output is not affected by the shapes or sizes (www.eere.energy.gov/buildings/ssl/comparing.html).

Zheludev & N. (2007) recommends 35,000 to 50,000 hours of light for a typical LED compared to 10,000 to 15,000 hours of fluorescent lamps. This proves that life expectancy of a new Solid State Lighting is expected to last longer than a conventional lighting.

Hence, Schubert (2006) suggests that in contrast to other conventional lightings, the LED lights fade revealing the symptoms of failure rather than an abrupt stop of lighting. Another advantage recorded by Schubert is that they decapitate less heat and is done in the form of Infrared Rays. Wasted energy is dispersed through the heat sink which is fixed at the bottom of the lighting (Held, 2007). Other advantages include the easy switching ON and

OFF of the lights. It has a faster response system and a quicker time pace in achieving full brightness in under a microsecond. For this reason, LEDs can be used for quicker on-off cycling, whilst working efficiently (Schubert, 2006).

2.5.b Key Disadvantages of LED Lighting

Ohno & Y. (2005) argues that the performance of LEDs largely depend on the ambient temperature of the operating environment. In case of using it in higher temperatures, it would lead to heating of the LED pack and eventually to a device malfunction. This crucial factor is to be considered for applications such as automobiles, medical, military and other environments which are prone to extreme temperature fluctuations.

Voltage sensitivity is another disadvantage as suggested by Moreno, Ivan, Cherng & Sun (2008). The electric current supplied to the device should be just above the threshold current. Hence the circuitry required for the device would include resistors and current regulators which makes the circuitry complicated and irreparable. This is also supported in journal written by Zheludev and N. (2008).

Another disadvantage as suggested by various magazines and news such as sciencenews.org (May27, 2007) is that blue LEDs and cool-white LEDs are capable of exceeding the blue light safe limits as recorded by ANSI/IESNA RP-27.105, which is recommended by the Photo-biological Safety for Lamp and Lamp Systems. The news also suggests that cool-white LEDs emit more blue light than the usual outdoor lighting, which can lead to further radiation. This phenomenon is known as Blue Light-Ray Radiation.

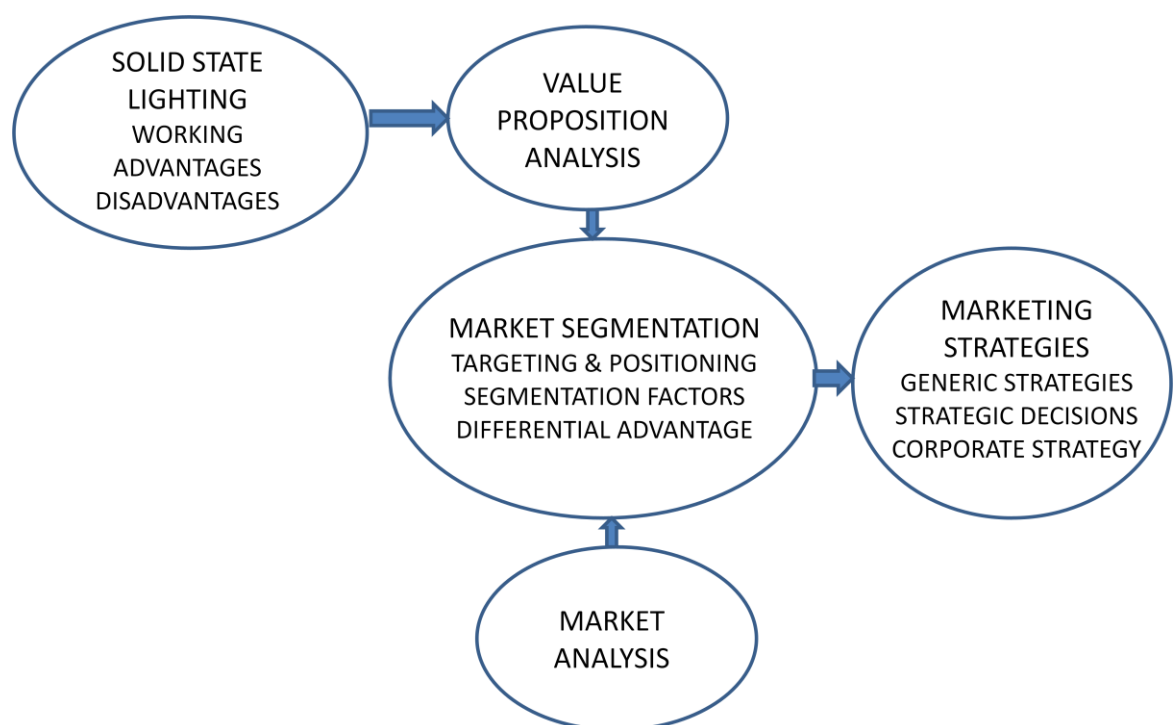
2.6 Conceptual Model

The objective of the research is to penetrate in to the possibilities of marketing Solid State Lighting by understanding the Customer Value perceived by organisation in substituting the conventional Lighting with Solid State Lighting. For this, we would consider the working and functionalities of Solid State Lighting, realising the key benefits.

$$\textit{Perceived Value} = \textit{Perceived Benefits} - \textit{Perceived Sacrifices}$$

Understanding the Value Proposition, Market Segmentation is done to differentiate the Solid State Lighting from the other Conventional Lightings. This is done by analysing the attributes that leads to Market Segmentation. This is achieved by positioning the product in the market which requires segmenting. For instance, specific lighting areas such as down lights, high bay lights, focus lights, cloud lights, etc. (However, LED has found its applications in most of today's lighting sectors). During which, the market analysis is done using the preset tools such as P.E.S.T.L.E and S.W.O.T.

These would collectively contribute to the formation of Marketing Strategies, which would include the generic strategies, the strategic decisions needs to be taken, and the corporate changes that needs to be addressed specifically to market the product.



2.7 Summary

The Literature Review has considered the theoretical concepts and ideas that liaise with the marketing of Solid State Lighting, by understanding and assessing the different hypotheses put forward by various professors and authors. The Chapter examines Value Proposition Analysis to understand the different upcoming Client Reception(s) on products and the Value Propositions made. Further to this, the chapter identifies two different market analytical tools such as P.E.S.T.L.E and S.W.O.T. Further investigation is done on Market Segmentation by understanding Market Targeting & Product Positioning. On these lines, we also identify the different factors that affects market segmentation and its differential advantages. Which is then followed by Marketing Strategies that needs to be understood to market a niche product. Literature on Generic Strategies, elements for Strategic Decisions and Corporate Strategies to market a product is examined. The Review further looks in to the working of a Solid State Light listing the advantages, disadvantages and the futuristic Organic LEDs which are biodegradable.

The overall research and the report to market the Solid State Lighting will be based on the conceptual model. The methodologies adopted and the research findings will be explained in the subsequent chapters followed by the conclusions and recommendations.

Chapter 3

Methodology

This section explores the research philosophy adopted to examine and understand Customer Value Proposition and the different techniques that are currently used to market a niche product such as the Solid State Lighting. It literates the investigation adopted to identify the different factors that affects the market and its segmentation.

3.1 Research Philosophy

As stated by Page (2010) Research Philosophy is about questioning the researcher's questions. Examination is made based on the underlying assumptions. It has it's explanations on why the researcher investigates in the way he/she chooses. As cited by Burke from Saunders, Lewis and Thornhill (2007), "The Research paradigm acts as a 'set of lenses' for the researcher."

Many authors such as Easterby, Thorpe and Jackson, (2008); Saunders et al (2007); Hussey & Hussey, (1997); Fisher (2007), have highlighted many alternatives and definitions to different kinds of researchers. Saunders et al (2007) has portrayed the three epistemological stances as Positivists, Realists and Interpretivist which otherwise is known as the Phenomenon-Logical.

Saunders et al (2007) proceeds to explain that positivists prefers to work in a place where social reality is observable and the end product of such a research can be a regulation analogous to the ones stated by science or natural science. The Philosophy of positivists relies on testing of hypothesis and considers everything be capable of proof.

However, Sobh and Perry as cited by Fisher (2007) suggests that consumer behaviour cannot be analysed with positivism. Thus its relevance can be best found in scientific research than in Social Science. On the more, the interpretivist believes that the world is convoluted and cannot be brought to some predetermined regulations.

Fisher (2007) explains that the interpretive paradigm considers social reality as a result of individual considerations and does not support hard facts and theories. They do not rely on qualitative and quantitative data.

However, Easterby et al (2008) classifies them broadly as Positivists and Phenomenological.

	Positivists Paradigm	Phenomenological Paradigm
Basic Beliefs	The World is External and Objective	The World is Socially constructed and subjective
	Observer is Independent	Observer is a part of what observed
	Science is Value free	Science is driven by Human Interest
Researcher Should	Focus on Facts	Focus on meanings
	Look for Causality and Fundamental Laws	Try to understand what is happening
	Reduce Phenomenon to Simplest Laws	Look at the totality of each situation
Preferred Methods Include	Formulate Hypothesis and then test them	Develop ideas through induction of data
	Operationalising Concepts so that they can be measured	Using multiple methods to establish different views of phenomenon
	Taking Large Samples	Small Samples investigated in depth over time

Table 5.1: Research Paradigms (source: Easterby et al, 2008)

As outlined in the chapter 1, the research questions best fits in the Phenomenological Paradigms as compared and contrasted to Positivists Paradigm. This is done by weighing against the parameters as listed by Hussey and Hussey (1997).

- Information obtained is rich and subjective; the qualitative data obtained is subjected to the gathering of the researcher.
- The location is accepted as the common place of trade and a commercial organisation.
- Validity of the findings are high, as the gathering of empirical data is done directly.
- It has qualitative data.

3.2 Research Approaches

Saunders et al (2007) continues to categorise research approaches as Empirical, Non-Empirical and a combination of both. Empirical approach can further be classified as

- Quantitative/Qualitative
- Deductive/Inductive
- Subjective/Objective

The different approaches will be briefly discussed in the subsequent sections.

3.2.a Non-Empirical Approach

This approach is based on the research which was previously done by another researcher. The evidence and the information gathered is based on the previously collected data perhaps for a different research objective. Its often affiliated to human perceptions and consumer behaviours (Williams, M. and May, 1996).

Researches specially based on historical subjects depend on this approach for investigation.

3.2.b Empirical Approach

According to Saunders et al (2007), empirical approach is the method of investigation that gives first hand data/information on the research questions. Hence as stated by Saunders et al (2007), is used to test a hypothesis. The result will be supported by the findings from actual experiments.

However, Hussey and Hussey (1997) classify research purposes as Exploratory, Descriptive, Analytical and Predictive. They characterize empirical information as data by observation or experience. Easterby et al (2008) also oversees the significance of empirical approach for researchers.

3.2.b.1 Qualitative / Quantitative Approach

Authors such as Myers, (2009) explains that the Quantitative Research was developed originally in natural science to study natural phenomenon. Examples as quoted by Myer include numerical methods, formal methods, laboratory experiments and survey methods. Majority of the data contains the statistics as compared to Quantitative models

can be used to generate mathematical models, theories and hypotheses which is used to take in firsthand account of the data (Fisher, 2007).

Qualitative Research on the other hand, aids the researcher in understanding and relating the human perceptions within the social and cultural contexts. Qualitative Research data sources cover areas such as interviews, documents and questionnaires to list a few (Myers, 2009). Hussey and Hussey (1997) quotes "Subjective approach which includes examining and reflecting on awareness to gain understanding of social and human activities."

Most of the research employs qualitative methods to gain discernment on Value Proposition and to have an in-depth analysis of the market.

3.2.b.2 Subjective / Objective Approach

As described by Saunders et al (2007) the extent of researcher's involvement best defines subjective or objective paradigm of investigation. The research is said to be subjective if the researcher is involved in or has an influence on the outcome. Nevertheless, he/she is said to be objective if the researcher is distant from the research field work.

Easterby et al (2008) proceeds to contrast the validity of the results between the subjective and objective paradigms. The Phenomenological Research itself is very much subjective in nature, as it necessitates both the real world conditions and the researcher.

Hence, it is evident that Phenomenological Research requires a subjective approach. Attention is paid to this aspect in the Research. Hence, the research project makes use of empirical approaches to fully understand the market for Solid State Lightings in Bahrain.

3.3 Research Strategy

Considering the different Research Design Alternatives that were listed by different authors (Easterby et al, 2008; Saunders et al, 2007; Hussey & Hussey, 1997), Survey, Grounded Theory, Ethnographic Study, Action Research, Modelling and Case Study were some of the initial design alternatives under consideration. Survey is typically used to collect data that are used for quantitative analysis, while alternatives like ethnographic and grounded theories are used to observe and analyse the human characteristics and response

to different conditions and scenarios. Action Research is the type of research where the research takes its shape in the field and is very mobile with circumstances. Modelling is a type of research where models are made with focus to the research activity. Case Study is used to observe and examine the social occurrence within a particular situation.

Given the circumstances of the research objectives as outline in chapter 1, it was decided to make the best use of the Case Study with Action Research along in lines with ethnographic study (as in both the past experiences and internship programme), Interview and Survey (Questionnaire) was also employed to address key the research aims.

3.3.a. Case Study Research

Yin (2008) has defines Case Study as “The empirical inquiry that investigates a contemporary phenomenon within its real life context.” A strong support is provided by Stake (2000), as he quotes “a case study is intended to catch the contemporary phenomenon within its real life context. It is the study of the particularity and complexity of a single case, coming to understand its activity within important circumstances.”

With recommendations from various authors, the Case Study identifies mainly three phases

- Understanding the present situation:
This is done by Action Research and Interviews. With previous work experience in the organisation, functioning of company is understood and research is enhanced with the latest information with latest updates from the company spokesperson.
- Gathering information:
Information on the company background is understood with personal work experience and interview with the director. Information on the latest trends in Lighting and other consumer behaviours is gathered with questionnaires and interviews made with the clients and the marketing department of the company.
- Analysis of the findings and recommendations:
The findings found is then analysed and cross-verified with the theories mentioned in the Literature Review to find the shortcomings and hence make explicit recommendations for the company based on the research objectives.

3.3.b. Questionnaire

Questionnaire is significant research tool used to collect primary data. While Kervin (2006) makes clear the utility of questionnaires in which persons accounts their perceptions and opinions, authors such as Bryman and Bell (2007), signifies it as a research instrument and a thought-out tool to collect first hand data. Saunders et al (2007) cites De Vaus viewing it on a much wider perspective.

To understand and realise the market for Solid State Lighting, the research was done by distributing questionnaires to clients of the Case Study Company. To additionally understand the Value Proposition of UK customers on Solid State Technology, questionnaires on similar lines were also distributed discreetly. The questionnaire was custom designed for the two different regions (One being for UK and the other for Bahrain).

The questionnaire was specifically designed and formulated based on the Literature mentioned in the previous section. Although, main focus was laid on Customer Value Proposition which is the core research literature.

For United Kingdom: The questionnaires were designed based on the product and the services provided by their present supplier of LED lights.

For Kingdom of Bahrain: The questionnaires were based on their perceptions about the case study organisation and their services. The survey also covers briefly on their discernment on Solid State Lighting.

The inputs collected from both the questionnaires were analysed and compared to understand the difference in the marketing challenges. This led to a relative analysis of the working of organisation in different countries based on their geographical consumer behaviours and value propositions. This helped in assessing and realising the different strategies required, marketing the same product which is Solid State Lighting. Hence, to get a precise view of the market and its challenges, Interviews were held with the case study company to understand and realise the potential of the market for Solid State Technology.

The questionnaires have equipped the researcher with information regarding the customer's proposition and perceptions on Solid State Lighting along with their discernment on the case study organisation.

3.4 Justification for the Research Strategy

Case Study Research / Interview / Questionnaire

In terms of the Research Objectives such as finding the market, the product awareness and Value Proposition for Solid State Lighting; in-depth awareness of the product and the market is required. Hence, Case Study Research is expected to address such key issues. In accordance to the works published by Yin (2008), this case study provides extensive access to the Academic Research engaging theories mentioned Literature Review.

Cavaye (1996) states that “study of a single case study enables the researcher to investigate a phenomenon in depth . . . enabling the rich description and revealing the deep structure.”

- Extensive knowledge on the background of the case study organisation is available with researcher due to previous work experience.
- Knowledge on the lighting market and the resources available in the market is crucial to understand the market potential for the product.
- Familiarity on the current trends and practices is vital to appreciate the current practices followed by the organisation.

As suggested in the Literature Review, Value Proposition for the product and the market needs discretion using analytical tools such as the S.W.O.T and P.E.S.T.L.E. For this, a Subjective Research method such as the researcher’s involvement in the case study organisation is important. Detailed analysis with aid of Case Study, Interview(s) and Questionnaire is required to address the key issues for Market Segmentation and Targeting.

- Questionnaire is used to make quantitative analysis on the Value Proposition.
- It was appropriate in gathering evidences for Customer Perceptions on the product.
- It was also apt in giving information about the Case Study Organisation which is necessary to understand the customer’s preference on the company’s services.
- Interviews with spokespersons were necessary to address the key issues of the company’s current strategies and long term goals.
- To simplify the contrast between the UK and Bahrain clients, similar questionnaires with slight variation was used which resulted in collecting the data with ease.
- Online Survey with the aid of e-mails was used to identify and research the market.

- The online survey with action research aided me in identifying and realising the potential of Solid State Lighting in UK and in the Kingdom of Bahrain.

3.5 Unit of Analysis and Sources of Data

The Unit of Analysis is the Case Study Organisation which would serve as the Point of Sale for the Solid State Lighting. This would also cover other major areas such as the trade and the Niche sector the product belongs to in the market. Further to this, existing services provided by the organisation is studies and critically analysed using the tools mentioned in the Literature Review. The sources of data would include the questionnaires replied and the structured interviews along with observations made.

3.6 Data Collection and Legitimacy

As the previous place of work of the Researcher, Action Research was the key factor that governs most of the data collection. However, efforts were made to validate the results with interviews and questionnaires.

Ethnographic Study was mainly involved while working with the company in Bahrain. Hence, this method was used to understand; (a) the background of the organisation to the present situation, (b) gathering more specific data, as a part of in-depth exploration of the current strategies and long term visions and (c) the capability of the company to take in recommendations and the capacity to stock the product.

The case study organisation was chosen after much discretion, taking in to account both the objectives and the level of commitment from the organisation. Preliminary collection of data was done based on experiences with the organisation.

Further to this, both Quantitative and Qualitative facts were collected with a succession of structured and unstructured interviews. This also involved in collecting artefacts which relates to the existing clients on a strict confidential lines.

Some of the data was collected through telephone calls and Skype Calls. Meetings were held with the existing UK clients to draw together firsthand data on product perceptions.

One month internship experience with the UK supplier was used to comprehend the UK market and the demand for it internationally. Along with this silent observation was done to critically analyse the strategies adopted by the firm to market the product.

As recommended by a number of Authors (Yin, 2008; Easterby et al, 2007; Gillham, 2005; Stake, 2000), Triangulation is used to extend the reliability and the quality of the data collected by Qualitative Research Methods. It helps in preventing the bias either from the researcher's influence or from the behaviour of the participant (Stake, 2000). Gillham (2005) promotes this idea by advocating the increased strength of the data collection with diverse sources of evidences.

Legitimacy is strengthened by three main triangulations as suggested by Stake (2000)

(1) Theory Triangulation: This is done by analysing different theoretical concepts in marketing a niche product and the different strategies required. Theories on segmentation were also discussed to fully constructed to understand the target market and product positioning.

(2) Data Triangulation: This engages different sources that were used to validate a particular finding through field experience, company reports, market status, questionnaires and interviews. This was also tracked down by group discussion with the officials to follow the progress made in achieving their goals.

(3) Methodological Triangulation: This is done by employing a variety of data gathering tools such as Qualitative and Quantitative methods; and other previously mentioned methods.

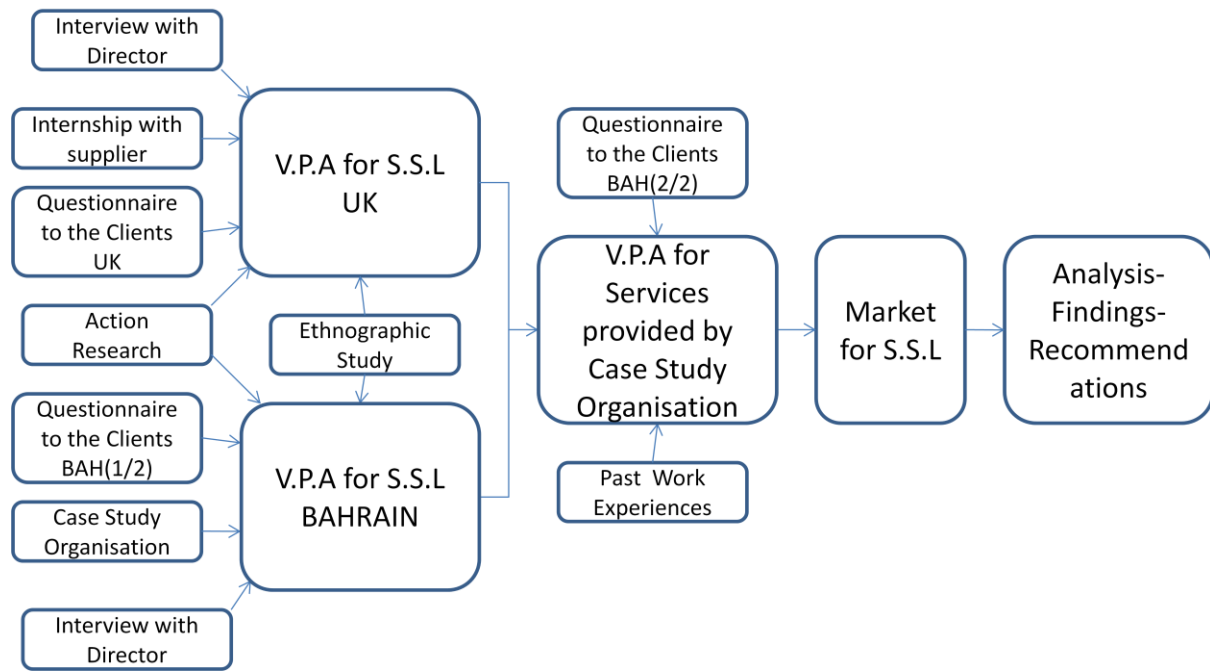
3.7 Pilot Studies

In ahead of the research various studies were conducted on the UK market with numerous case studies as directed by the University. This aided in getting a better understanding of actual cases and real time difficulties in marketing a niche product. Along with this, certain efforts were also made to identify the requirement of the Lighting Industry in the kingdom of Bahrain, which brought the researcher to conclude on Solid State Lighting.

In addition to this, negotiations were held to address this issue with the case study organisation and the UK supplier to identify and obtain the necessary data agreeing to and respecting the confidentiality.

3.8 Research Design

The Research Design is structured based on the conceptual model and is shown as follows



The Research is executed on Five Phases.

1. Value Proposition Analysis for Solid State Lighting in the UK
2. Value Proposition Analysis for Solid State Lighting in Kingdom of Bahrain
3. Value Proposition Analysis for Services provided by the Case Study Organisation
4. Realising the market potential for Solid State Lighting in Kingdom of Bahrain with Market Analysis Tools: P.E.S.T.L.E and S.W.O.T
5. Analysis – Findings – Recommendations and Conclusions

3.8.a Phase 1: Value Proposition Analysis for Solid State Lighting in UK

The first phase is used to understand the value given by the UK customers for Solid State Lighting. This would aid in achieving a reasonable level of understanding about the Lighting Market in the UK. This phase is done with the internship opportunity that was

provided by the UK supplier for Solid State Lighting. This phase mainly covers the following research methods . . .

- Internship with the company
- Interview with the Director of the company
- Observational Approach
- Questionnaire to the clients in UK
- Action Research
- Ethnographic Study

3.8.b Phase 2: Value Proposition Analysis for Solid State Lighting in Kingdom of Bahrain

The third phase would inculcate the understanding of Solid State Lighting market in Bahrain. This is achieved with previous experience in the company and by other research methods. However, the second part of the questionnaire was used to understand the value proposition for Solid State Lightings. Phone calls to various clients were also made to understand and realise the market potential; by having the interviews structured in lines with the questionnaire. Observational Research was also a major step used in realising the Value Perceived by the Bahrain Lighting clients. Hence the main two approaches were

- Observational Research
- Interviews / Questionnaire [part-2/2] to the clients in Bahrain to understand the Value Proposition for Solid State Lighting.

3.8.c Phase3:Value Proposition Analysis for services provided by Case-StudyOrganisation

The second phase would cover the analysis of the Case Study Organisation which is Ahmedali Ahmed Electrical Contracting. This would aid in giving the researcher an idea of the capacity and the capability of the company to market the product realising the different functionalities of the company. This would result to an in-depth exploration of the current strategies and the long term visions of the company.

- Previous Experience with the organisation
- Interview with the Director of the company

- Interviews / Questionnaire [part-1/2] to the clients in Bahrain to understand the services provided.
- Action Research
- Ethnographic Study

3.8.d Phase 4: Market for Solid State Lighting in the Kingdom of Bahrain

The market for Solid State Lighting is analysed with interviews (with the company director) and with the major clients of the company. This includes both structured, unstructured and semi structured interviews without making them realise as an entity of the research. Although, they are a sole entity in the research and a prime source of understanding the market for Solid State Lighting. This is achieved precisely with the analytical tools such as P.E.S.T.L.E and S.W.O.T.

3.8.e Phase 5: Analysis – Findings – Recommendations & Conclusions

The fifth and final stage would focus on making a comparative research of the value given to the technology. Further analysis will also be done to understand the potential of the market. The data collected will be scrutinised and learned to fully understand and evaluate the constraints in the market. The Comparative Analysis in perceptions between the UK and Bahrain has proved to be vital in making findings and thereby make recommendations. The Research Study also intends to increase the level of strategies contained by the organisation to help market the niche product. The information obtained from the Literature Review, the UK supplier (with internship) and the Bahrain market has aided the researcher in making exclusive conclusions and recommendations for the case study organisation.

3.9 Method of Analysis

The research is mainly focussed in tailoring strategies that would help market the Solid State Lighting in Bahrain. This would involve major understanding of the different theories and frameworks that is necessary in framing strategies. The study also aims at developing the resources available to the case study organisation by extending their relationships to the UK with the suppliers. This would set new trends and standards in the industry.

To fully understand the concept, the theoretical frame work for Value Proposition Analysis was studied and cross examined with the data collected. In addition to this, market analysis was done to find various forces in the market that affects the product.

For the purpose of the study, approximately 50 clients were approached both in UK and Bahrain. However, only 12 participated in UK and 15 in Bahrain in telephonic interviews and questionnaires. The data obtained from the questionnaire and the survey was examined and summarised; in order to evaluate and execute the current strategies employed for marketing both in UK and Bahrain.

Most of the analyses were empirical, while quantified amount of data was also achieved through the questionnaire and the telephonic interviews.

3.9 Limitations of the Research

The researcher had many constraints while executing the project. This has developed to certain restrictions in conducting the research. However, best efforts were made to create strong validation in the findings and the data obtained.

- Major challenge facing the researcher was the collection of data from UK. Although a sample of 50 companies were used, only 12 companies were involved and participated in the survey. Reasons for their lack of support could be the fear of confidentiality leak.
- Another challenge faced was the lack of time to understand and affiliate with the companies fully. The companies that cooperated with the study were very interested in the technology as it was very different and innovating. Hence a majority of the time spent on telephonic interview was used to explain the technology and the major challenges in the industry.
- The difference in opinion of the individuals are based on many factors such as the company size, financial strength, knowledge about the product, technical staff, individual behaviour and the sector the company is placed in. Hence responses may change rapidly based on factors mentioned. (Albeit, to minimise the errors, efforts were made to survey companies with similar market position and characteristics)

- The Research Objectives has extensive scope in practical implications. However, due to the lack in time for the proposed study, comprehensive study on the same was limited.
- While considering the triangulation method to increase the validity of the findings, investigator triangulation couldn't be considered as this study was done solely.
- The researcher had only limited access to the UK customers database due to data protection act.
- Since the survey was conducted by the researcher, who is an alien element to the companies which were surveyed, data/information collected were scrutinised and restricted.

3.10 Ethical Issues

The Researcher was affiliated to two main companies in the UK and Bahrain. The association with the UK company was strictly as an Intern. Nevertheless, restricted access to the company clients was permitted. However, In the case of the Bahraini company, access to different clients and market information was sanctioned as the report is designed to promote the company in Solid State Technology. Albeit, confidentiality was urged to be maintained by the company. Most companies have asked to keep the data within closed lines and to be used solely for the research.

Therefore, the companies surveyed needs to be masked in the study. Additionally, data collected will be used to exclusively for the study and for no other purpose.

3.11 Summary

The chapter has best portrayed the different, but relevant research philosophies that needs to be addressed, outlining the different paradigms. This is followed by the Research approaches explaining the empirical and non-empirical approaches. Research Strategy was then examined and studied to execute the best research approaches, which is case study, questionnaire and the interviews. These strategies were later justified and resourced with addressing the literature review and the research objectives. The Unit of analysis and sources of data would be primarily from the case study organisation. This was followed by listing the different data collections and the legitimacy involved. A brief discussion on the pilot study employed was also recorded followed by the Research Design. The five phases in the design was briefly explained and critically evaluated. Limitation(s) in the research is also briefed in this chapter followed by the ethical issues.

Chapter 4

Analysis and Findings

This chapter explores the different analyses and findings observed and recorded while executing the research methods as mentioned in Chapter 3. This section would cover the major findings and aid the reader to fully develop an idea in to the research objectives by cross examining the data recorded with the literature review. To ease the reader's link between data patterns and findings, the Chapter has been organised in to five sections.

1. UK Supplier & the Case Study Organisation (Description)
2. Value Proposition for Solid State Lighting(UK & Bahrain)
3. Value Proposition for the services provided by the Case Study Organisation
4. Market Analysis for Solid State Lighting in Bahrain
5. Initial Market Segmentation & Positioning

The findings in this chapter are recorded by using different research methods. Since the majority of the data obtained is through empirical methods which mostly results in qualitative data as compared to the quantitative ones, information provided in this chapter will be descriptive in nature. As to increase the validity of the data obtained, the method of triangulation is done, which implies, a data (findings) can be seen repeating, as a result of having the same results from different research methods.

4.1 UK Supplier & the Case Study Organisation

4.1.a M J Lighting Ltd.

The university had placed the researcher with M J Lighting Ltd. on a one month placement. The company is a small scale Solid State Lighting company. The company imports Solid State components from eastern countries such as China and Korea. They assemble the components to make LED / Solid State lightings tailored to fit the requirements of the client. They also assemble general light-fittings that can be fitted in to the conventional light holders which can hence be used for everyday lighting needs.

The company has ventures its activities all over the UK. Since this recent change of management, the company has maintained its emphasis on the design and manufacture of

high quality LED fixtures. The company offers bespoke LED products for the architectural, commercial, industrial and retail markets. The company has also plans to distribute its products and services in the Middle-East, which additionally helps me in conducting my research. The company is also concern with data optic cabling which has the cutting edge technology in data transmission.

The LEDs manufactured is based on the latest CAD/CNC technology, using the highest grade of components. The company also offers extensive range of flexible LED strips in single colour or colour changing options. The other range of products includes the Spot Lights, Down Lights, Linear Lights and Aqua Europa Lights.

The company also offers architectural lights which caters the building consultants and architects needs. Different products like Aqua and MJL Boison with a variety of colours give excellent options for wall washing lighting. Due to clear poly carbonate closure and aluminium finish, the products looks attractive and innovative.

The company also caters for other needs such as traffic lights and public information data systems. Being at the cutting edge of Solid State technology, the company is able to meet the multiple needs of different industries. With complete access and expertise with DMX technology and Intelligent Digital Interface, it results to easy control of lighting, which is provided by the firm.

The firm is closely run and with minimum employees. This would aid in cutting costs for the product made. Advertising is done on scaled lines within a limited budget. The company is placed in a very competitive position and the profits generated are on an appreciable level. (Other information regarding the Market Position, Competitors, Profit Margins etc, needs to be masked due to confidential reasons.)

4.1.b AhmedAli Ahmed Electrical Contracting

AhmedAli Ahmed Electrical Contracting is service sector company which provides electrical services for homes and industries. The company provides complete electrical installation and maintenance. The company also has concerns in Fire Alarm Systems and Panelling. Hence the company sells Electrical Services, Power Panels, Telecom Services, Intercoms, Fire Alarm Products and Fire Panels.

With more than 10 years at service, the company has its electrical services extended to all over Bahrain and the Fire Alarm Services all over the Middle East. The company specialises in Low Voltage, Medium Voltage, High Voltage and Extra High Voltage Works. The company also undertakes the Ministry (Governmental) and telecommunication works which aids in building reputation for the company.

The company employs over more than 25 employees to execute work. The company has different management levels to execute projects all over Bahrain. The company also employs specialised marketing division for the fire alarm services to market all over the Middle East.

Further analysis on the company would be discussed in subsequent sections.

4.2 Value Proposition Analysis for Solid State Lighting

As suggested in Chapter 3, to understand the Value Proposition for Solid State Lighting, questionnaires were designed distributed to the clients both in UK and Bahrain. However, discretion was made while distributing the questionnaires, due to the geographical and marketing differences present in UK and Bahrain. Hence, the data from the questionnaires are distinctly mentioned.

4.2.a Value Proposition for Solid State Lighting in UK

The Value Proposition Analysis for Solid State Lighting conducted in UK was executed in three different ways. And the findings are listed as below.

(1) Questionnaire (2) Interview with the Director

(1) Questionnaire:

The questionnaire (as shown in appendix 2) distributed in the UK was based on the existing clients and users of Solid State Lighting. The purpose of the questionnaire was to understand and fully realise the value proposition of the Solid State Lighting. The questionnaire was also designed to fully understand the services provided by the company. This is critical to understand strategies adopted by the firm in marketing the product. The product being a niche market-product, the tastes of the clients are highly likely to affect the

sale of the product. Hence, best efforts are made to understand this taste of the customer through the questionnaire.

The questionnaire was distributed to over 50 clients. About 30% response rate was received. It should also be noted that multiple methods such as emails and telephonic interviews were utilised to get maximum response rate.

The questionnaire is designed to two halves where in, the first half estimates the consumer's perception before the Point of Sale, while the rest half of the questionnaire estimates the consumer's reaction after the Point of Sale. The questionnaire is designed to measure the gap between the Perceived Benefits and the Perceived Sacrifices.

Majority of the clients subjected to the survey were involved had less than 2 years of contact with the company. As the initial part of the questionnaire, focus was much laid on the performance of the product and its perceptions.

Regarding product satisfaction, 20% regarded it to be 'Very Good' while a 70% regarded it to be 'Fairly Good' with 20% of being not sure of their utility with the product. On asking the priority of the product attribute before the purchase of the product, 20% listed 'Cost of the Product', while a 20% listed 'Quality of the product', and 40% for 'Energy Savings', keeping 'Performance of the Product' at 20%. On asked to rate their expectations on the performance of the product, around 80% of the subjects mentioned 'Excellent' while 15% mentioned 'Good' and a mere 5% as recorded 'satisfactory'. It has also been found that a majority of the subjects (85%) used the product for First Installation' rather than replacing the previous one. When asked on the perceptions of the product before the purchase, there was a mixed opinion, rather than a uniform opinion on the perceptions. 20% ticked 'Extremely Unique' and 'Slightly Unique', while 30% chose 'Unique' and 'Uncertain' about the uniqueness. However, when asked about their perceptions as of today, based on their usage, 70% chose 'Extremely Unique' while 20% 'Slightly Unique' and a 10% 'Unique'. When asked to rate the quality of the lighting, 80% of them recorded it 'Very Good' while a 15% recorded 'Fairly Good' and 5% as 'Neither Good nor Bad'.

While the question about their energy consumption raised, about 10% said 'True' while a majority (75%) mentioned 'Somewhat True'. Albeit, 15% weren't 'Sure' of their

reduction of energy costs. In the question of utility satisfaction, 5% chose 'Definitely Yes', whereas 40% said 'Probably Yes'. Although, there were about 25% who weren't certain about it. Regarding their current supplier, 20% mentioned 'Definitely Yes' and 40% mentioned 'Probably Yes' when asked about continuing their purchase from their current supplier. However, 22% were Unsure and 18% said 'Probably No'. While asked about the marketing practices adopted by the firm, 10% mentioned 'Excellent', 40% mentioned 'Good' and 40% 'Satisfactory'. Although, 10% did mention it as 'Not Bad'.

(2) Interview with the Director

During the internship, talks with the director were held almost every day. This method was used to fully realise the potential of the market and the perceptions of the UK clients to the product.

Product: It was found with cutting edge technology, product can be customised and tailor fitted to almost any requirement of the customer. It was also found that the technology uses just as much as half the energy as the conventional lightings use. This is the modern day lighting whose working hours is triple the working hours of the fluorescent lighting. This gives the differential advantage over the other lightings. This implies that Solid State Lighting is a one investment affair in getting good quality lighting.

Clients: It was also discovered that most of the clients to the company are the corporate clients who purchases the product in volumes. Hence the company is more focused on volume sales, rather than solo sales. The company has clients all over the UK and Europe. The company has also plans to extend its services in to the Middle East.

Strategies: One of the main strategy observed is the compliance of the company to customise the product to the client's requirements. This calls for extra man hours of design and investment in testing the product. However, at this expense, the company gains the good will and trust of the clients in getting them the best product at optimum price.

4.2.b Value Proposition for Solid State Lighting in Bahrain

The Value Proposition Analysis for Solid State Lighting in Bahrain was conducted in three different ways. And the findings are listed as below.

(1) Questionnaire (2) Interview with the Director

(1) Questionnaire: (Part1/2)

The questionnaire (as shown in appendix 3) distributed in Bahrain was based on the existing clients of AhmedAli Ahmed Electrical Est. (AAE). The purpose of the questionnaire was to understand and examine the value proposition of the Solid State Lighting and to find the client's perception on the services provided by the firm. The questionnaire was also designed to fully recognize and appreciate the services provided by the company. This is significant to understand the strategies adopted by the firm in providing services. Although the firm has its experience in marketing products such as the fire alarm accessories and panels, marketing a niche product such as the Solid State Lighting would be a new venture. Hence, best efforts were made to comprehend the customer through the questionnaire.

The questionnaire was distributed to over 50 clients. The response rate was 35%. It must also be noted that multiple methods such as emails and telephonic interviews were employed to get a maximum response rate.

This questionnaire is also designed in two halves in which, the first few questions assesses the consumer's expectations of the product, while the rest questions estimates the consumer's reaction on the services provided by the firm. The questionnaire is designed to measure the gap between the Perceived Benefits and the Perceived Sacrifices the client is ready to make with Solid State Technology.

Majority of the clients subjected to the survey involved had more than 3 years of association with the firm with 33% less than 2 years and 77% more than 3 years. When asked to rate the highest priority of product attribute while purchasing the Lighting, 50% mentioned that the quality of the product, 20% each mentioned that cost and energy savings would be their priority. However, 20% did mention that performance of the product is their main concern while purchasing the product.

On asked to rate their perceptions on the performance of the product, around 10% of the subjects mentioned 'Excellent' while 10% mentioned 'Very Good', 63% mentioned 'Good', 7% recorded 'satisfactory' and 10% cited 'unsure'. Regarding the installation, 73%

mentioned that it was for new installation, while 23% mentioned the 'probable yes'. However, 4% did mention that they weren't sure.

When asked on their perceptions on purchasing the product, there was a diversity in opinions. 65% cited 'Extremely Unique' and 13% 'Slightly Unique', while 10% chose 'Unique' and 5%'Uncertain' about the uniqueness. Regarding the services provided by the company, analysis from the questionnaire is made in the subsequent section of 'Value Proposition for the services provided by the Case Study Organisation'.

(2) Interview with the Director

During my research, calls were made to Bahrain to introduce the technology and to discuss the possibilities about marketing the Lighting in Bahrain. Along with the introduction of the technology, other topics such as the market for Solid State Lighting and challenges the industry face to market a niche product such as it, was considered. Other topics that were discussed were the short term/ long term goals of the firm. Details on the investment, stocking capacity and the importing protocols were also discussed.

Product: It was realised that the market for the product is relatively new and there isn't many who has developed the segment. With this cutting edge technology, the product can be customised and tailor fitted to almost any requirement of the customer. It is also found that the technology uses, just as much as half the energy as the conventional lightings use. This information arouses interests in companies and architectural consultants. Also, the working hours of this lighting is double compared to those of the fluorescent lighting. This gives the differential advantage over the other conventional lightings. This implies that Solid State Lighting is a one investment affair in getting high-quality, guilt free light.

Market: It was discovered that most of the clients are corporate clients who makes use of their service almost every three months due to maintenance and new works. Hence the company has set grounds for volume sales, and also be able to retail the Lighting on a later stage. With regards to the Fire Alarm accessories, the firm has clients all over the Middle East. Further to this, the company looks forward to invest in new technology, such as the Solid State Lighting.

Services: The firm offers Electrical Services and sells Fire Alarm Accessories which is also imported from the UK. Further to this, the organisation provides telecom and data cabling services which is a niche market in Bahrain.

Future Services: The company has a strong marketing and a technical team. Hence, this combined effort enables the firm to venture out in to the niche sector. The company also looks in to selling power panels which is also a new market in the industry. Overall, thoughts are being made to change over from the service industry to a retail industry for technical products such as the Fire Alarm Accessories, Solid State, Power & Control Panels and Lighting.

4.3 Value Proposition for the services provided by the Case Study Organisation

The findings for Value Proposition for the services provided by AAE was executed in three different ways:

(1) Questionnaire (2) Interview with the Director

(3) Past Experience (Observational Research)

Questionnaire: (Part2/2) (contd. of the previous questionnaire)

Regarding the services provided by the firm, 52% of the subjects mentioned 'Excellent' performance while 30% quoted 'Very Good' and 18% recorded 'Good'. With regards to meeting the expectations of the clients, 66% cited 'True', 30% cited 'Some What True' while a mere 4% did mention their uncertainty for the same. In the question of utility satisfaction for the services provided by the firm, 78% chose 'Definitely Yes', while 22% said 'Probably Yes'. When asked on if the client would continue to buy product/services from firm, 65% cited 'Definitely Yes', while 30% said 'Probably Yes' with 5% 'unsure'. While asked about the marketing, 33% mentioned 'Excellent', with 55% citing 'Good' and 12% quoting satisfactory.

(2) Interview with the Director

Services: Regarding the services offered by the company, it was found that the company has been in the market for over ten years and has developed good relations all over the industry. The firm has increased its activities over the past years from general electrical

services to telecommunication services. It has also ventured in to data cabling, power panelling and control systems cabling. The latest venture has been in to Fire Alarm Panelling and accessories. Services are also provided in consultation for electrical works and maintenance. In addition to this new ventures such as supplying Power panels is also under consideration. (This would result to backward integration in providing electrical services)

(3) Past Experience (Observational Research)

As the previous job of the researcher in Bahrain, over two years of experience was attained with firm. During which the researcher had closely observed and analysed the market for the Electrical Services and products in the country. The researcher was involved in marketing and executing projects. This included client negotiation which involved close understanding of the client needs.

The firm is open to new ideas and businesses which enabled its growth over the past years. The firm has always been encouraging to its employees and has pampered their creativity in executing the work. The firm was continually updated with the latest technology in its sector to raise its working standards. The firm had teams of workers which gave them a close partnership between the workers to work as a team.

In marketing, the researcher was also responsible for the sale of Fire Alarm Accessories to ongoing construction sites through consultants. This enabled the researcher fully understand the market for electrical goods such as the Solid State Lighting which is a niche market. The company better understands the better profits, growth and innovation in the sector. The upcoming of the department is the result of it's openness to newness and its capability of venturing in to new sectors.

4.4 Market Analysis for Solid State Lighting in Bahrain

The market analysis for Solid State Lighting in Bahrain was analysed using two main tools as suggested by Lynch (2006) and Peter Doyle (2003): P.E.S.T.L.E and S.W.O.T as suggested by Kitts, Edvinsson and Beding (2000). The analysis is done keeping AhmedAli Ahmed Electrical Cont. Est. (which is the case study organisation) as centre point of the investigation. Hence, the data gathered for this analysis is obtained from:

(1) Previous Experience in the market, (2) Ethnographic Study, (3) Questionnaire

(4) Interview with the directors (UK & Bahrain), (5) Action Research

4.4.a P.E.S.T.L.E

As previously explained in Chapter2 and as listed in methodology in Chapter 3, the P.E.S.T.L.E analysis data, that affects the business for Solid State Lighting is as follows.

Political: Government is sanctioning subsidy for importing the Solid State Lighting from UK which would eventually reduce the energy consumption. The other political factors could include the government regulation which requires the employer to pay tax and insurance for every employee. This is critical; as more employees will be required to provide technical support and marketing the Lighting.

Economy: With increasing Consumer Price Index, the prices for products could also go higher. The interest rates for BD10,000 would be 8.49% (National Bank of Bahrain, 2010). Unemployability has reduced by 3.7% (Andy Sambidge, 2010). GDP is rated at 21.903Billion as stated by World Bank (2010). Revenues generated (as of 2009) were around BD1,708.2Million (bahrain.com/Bahrain-economy, 2010).

Socio-Cultural: Bahrain is known to be a Business Friendly Country (<http://www.bahrain.com/home.aspx>). The local culture is very welcoming and friendly. The cost of living is moderate and affordable. There are also many cultural, historical and leisure resorts promoting tourism (bahrain.com/leisure_activities.aspx).

Technology: Bahrain has made significant advancements in technology with recent achievement in space technology (Mohammed Al Garf, GDN-12/03/2010). Bahrain has the most Information, Communication and Technological infrastructure and policies in the Arabian Gulf. Bahrain's e-government has rated over 90% success which eases the issue and renewal of business registrations, work permits, banking services, environmental compliances and e-Tendering (Bahrain.com/information-technology, 2010).

Legal: A large part of law is derived from the religious law, which is the Shariya law. However, the Contract laws and the Civil Wrongs Ordinance is based on the principles of the

English Common Law. This was implemented during the British Protectorate Period. Much of the recent legislations are based on the Civil Law format (infoprod.co.il, 2010; MoIEC).

Environmental: Marketing Solid State Lighting would help save more energy compared to the conventional lights. Electric power is generated from Petroleum.

4.4.b S.W.O.T

As suggested in Chapter 2, S.W.O.T is crucial to realise the different Strengths, Weaknesses, Opportunities and Threats facing the company in Bahrain to market the Product. Findings for S.W.O.T Analysis are as follows.

Strength: The different strengths for the industry is as follows:

1. Solid State Lighting is a relative new market in the industry. Hence, by being among the first players in the market, would help in gaining more clients interested in the Solid State Technology.
2. The technology used in Solid State Lighting is the latest and consumes just half the energy as that of the conventional Lightings used.
3. The firm is well reputed in the electrical sector.
4. The firm has good affiliations which would help market the niche product.
5. With previous marketing experience in Fire Alarm and Panelling, knowledge and experience on marketing is available with the firm.
6. Readily available Import/Export license with the company.
7. The technical and the marketing team in the company provide a strong back support.

Weakness: The different Weaknesses is listed as

1. There is a lack of awareness on the product.
2. It's a new venture for the company.
3. The product is a niche product, which implies, strategic marketing techniques must be employed.
4. It would be difficult to capture the initial market due to the lack of awareness about the product.
5. Distribution will be a major factor that needs to be focused initially.

Opportunity: The different prospects that awaits the product are

1. Main opening is the availability of being the innovator in the market.
2. Opportunity to promote 3rd generation L.E.D lighting.
3. Vast market that is yet to be captured in Bahrain.
4. Opportunity to expand the market to the other countries in the Arabian Gulf.
5. Help reduce Carbon footprint significantly.
6. New construction projects calls for innovation and for new technology.

Threats:

1. Right balance in the demand and supply must be maintained to achieve equilibrium in the profits.
2. If the strategy adopted is not apt and consistent, failure to achieve the market is highly likely.
3. Due to the readily available and cheap energy, the clients would be hesitant to switch over to the new technology.
4. Certain organisations have made contracts with their dealer in supplying lightings, which binds them to purchase the products from that supplier for contracted time.
5. Training the technical team would call in for further investments and time.
6. The marketing team must be technically aware on the functioning of the product.

4.5 Initial Market Segmentation & Positioning

To market Solid State Lighting, the market should be segmented in itself apart from the conventional lighting market. This is achieved by identifying a suitable sector from which Solid State Technology can take its share of lightings.

The different segments found to be available in the Bahrain market are

1. Architectural Lights (usually used for decorations and architectural finishes)
2. Room Lighting (for conventional illumination)
3. Garden Lighting (for illumination and architectural exquisiteness)
4. Outdoor Lighting (for outdoor lighting and path lights)
5. Path Lightings (guidance light)

6. High-bay Lightings (for storage systems and ware houses)
7. Designer Lightings (for architectural splendour and innovation)
8. Low Voltage Lightings (which is generally used for indicators & alerts)
9. Track Lights (lights used in dim light areas such as the theatres and concerts)
10. Public Information Systems (Display boards)

From the researcher's point of observation in Bahrain, Solid State Lighting finds its role in most of the segments as mentioned above. Despite its universal application in most of the segments, it is found that it would be more appropriate to consider Architectural Lights, Room Lightings, Garden Lighting, Outdoor Lighting, High-bay Lighting and Designer Lightings. This found after considering the different stocking and marketing capabilities of the case study organisation. Nevertheless, venturing in to other sectors could be considered on a later phase.

However, the case study organisation is rightly capable of entering in to one sector at a time. On the other hand, simultaneous training and investment in the technology could enhance the company's capability to expand its market share by venturing in to the different segments positioning itself as a strong competitor.

4.6 Summary

The chapter includes all the findings that is relevant to the study. The chapter initially includes a brief description of the two organisations that this study is oriented with. One company being the UK supplier and the other being the Case Study Organisation which is AhmedAli Ahmed Electrical located in the Kingdom of Bahrain. This is then followed by the Value Proposition Analysis for Solid State Lighting in the UK and Bahrain. This is achieved by collecting data from various sources by using different research techniques such as the Questionnaire, and interview with the director of the companies. Action Research was utilised with past experiences with the organisations. This is achieved by internship with the UK supplier and past experience with the Case Study Organisation. Using these techniques, value proposition on the services provided by the case study organisation is also examined and scrutinised. This is then followed by the market analysis using the analytical tools suggested by various authors. Finally market segmentation and market positioning is found which best suits for the product.

Chapter 5

Conclusions & Implications

This chapter covers the implications and conclusions of the findings and analyses from Chapter 4. Efforts are made to critically evaluate the adopted methodology aiding the reader to fully understand the research methods adopted and its findings in line with the research objectives. The findings are summarised and cross examined with the literature suggested by various authors recorded within the literature review. This is then followed by overall conclusions on Research Objectives. For an un-biased study, the limitations that became apparent during the study are also recorded in this chapter. Finally, to develop the reader's quest for further study, opportunities for additional research is mentioned.

5.1 Introduction

Chapter 1 had introduced the research objectives along with justification of the objectives. In which, a brief description of the methodology and how the dissertation (alignment of the study) is given. Chapter 2 had the literature review which laid the theoretical backgrounds for the study. It also had the conceptual model which skeletonises the study. This is followed by Chapter 3 which describes the major research philosophies, research strategies, unit of analysis and the ethical issues involved. Chapter 4 best portrays the findings and analyses involved.

Chapter 5, however, resets/rebuilds the model that was described in Chapter 2 with the outcomes of the research and analytical findings from Chapter 4 using the methodologies portrayed in Chapter 3.

The conceptual model as suggested in Chapter 2 requires the knowledge and findings of (1) Solid State Technological advancements, (2) Value Proposition, along with (3) Market Analysis, leading to (4) Market Segmentation, and finally to making (5) Strategies which includes the company and generic strategies. Although it had the essential literature and the conceptual model that was required to support the study, up-to-date findings and analysis of the market was required to strongly hold and sustain the study in its quest to find the Value Proposition Analysis for Solid State Lighting in the Kingdom of Bahrain. Hence Chapter 2 sets scenes for the study.

Chapter 3 lists the various research philosophies which led researcher to conclude on to the research methodologies adopted by him. To validate the research data obtained and corroborate the findings, the method of triangulation was carried out. This was done by cross verifying the data attained by a method with the data attained by another. Consequently, integrated research methods including Ethnography, Action Research, Questionnaire, and Case Study techniques were utilised. Analytical tools such as P.E.S.T.L.E and S.W.O.T was also used to comprehend the market (in Bahrain) in lighting employing the data obtained through the adopted methodologies.

Nevertheless, Chapter 4 verifies the literature suggested by the literature Review in Chapter 2 with the findings and the analyses. The findings and analyses were found by using the methodologies as suggested by Chapter 3.

5.2 Evaluation of the Adopted Methodology

The methodology adopted by the researcher in gathering the data and findings has evidenced the literature, thus helped in proving grounds for the research objectives and the current study. As quoted by Sobh and Perry(2006), cited by Fisher (2007), a realist approach has been adopted wherein empirical methods such as observation and ethnographic study leading to Qualitative data; along with Quantitative analysis employing methods such as questionnaires and analytics tools.

The questionnaire survey was supportive in realising the practical inference to the theoretical concepts and of “Value Proposition Analysis for Solid State Lightings” accustomed in the Literature Review. As advocated by De Vaus (2002), an efficient comparison is made between the UK and Bahrain regarding their proposition for Solid State Lighting; facilitating the researcher to key findings in efforts to market the product.

The survey using the online mailing systems and by telephonic means ensured participation from different clients located in two countries (UK and Bahrain). The data collected is supported by inputs from different managerial staff; which augments the credibility of the data. This helped in apprehending the different drawbacks and strengths that could aid in creating awareness and hence market the product. This helped in gaining

qualitative data which enables the understanding of human perceptions within hi/her social and cultural contexts; as cited by Myers (2009) in his works.

On similar lines, structured and semi-structured interviews were organised with directors of both the companies to relate their stands on the product. Further to this contacts of clients provided by them, proved to show their support and dedication for the study. In addition to this, their consent and permission to regard their organisation for the study is imperative. Specially, AhmedAli Ahmed Electrical Contracting for its support and contacts provided.

However, certain limitation in the methodology adopted is worth notifying for an unbiased study.

Regarding the questionnaire, feedbacks were made with the fear of losing confidential data or external penetration in to the company interests. Hence data obtained could be slightly biased and may perhaps be liable for further investigations. In further to this limitation, telephonic interviews based on the questionnaire was also employed; which could result to additional errors such as (1) the question interpretation, (2) failure to include additional information provided by the client and (3) limited time of response.

With regards to the Observational Research, recollecting past experiences at work could result to certain loss of primitive and important data concerning the Case Study Organisation to fully realise and understand the capacity and the capability of the company.

Ethnographic study was primarily focussed on two organisations. This could limit the in-depth knowledge of particular contexts and situations; to avoid this scenario, further investigations with other organisations is required which would call for additional time and investment. The ethnographic study was largely focussed on the directors and staff of the two companies; however, this study does not generalise the attitude and the response (providing information/contacts of clients) of every other business entities. In addition to this, the researcher has failed to develop a model based on the findings from this study.

Interview with the director of the case study organisation was based telephonic and was not face to face. The mood of the interviewee cannot be judged through the phone.

This could lead to tampered results in getting honest opinions. All the more, a tendency to portray high efficacies is highly likely.

In order to maintain data protection, certain information that could contribute to the perfection of this report was withheld by the both the organisations. Nevertheless, the researcher suspects this data to favour the study and help market the product resourcefully.

As the method of triangulation was involved in my studies, repetition of the data is found in the report; this caused due to the validation of the findings by using different research methods. Investigator triangulation was not considered as a part of triangulation.

Despite the different methodological constraints, best efforts are made to validate the data obtained through theoretical, data and methodological triangulation. In union with the theoretical framework suggested by the Literature Review, and the relative analyses made by the researcher has resulted to possible suggestions and recommendations to market the product in Bahrain.

5.3 Conclusions on the Research Objectives / Questions

Followed by the literature review; the results obtained from the methodologies are cross verified with the literature suggested by various authors, that supports the model.

Research Objective: “Value Proposition Analysis for Solid State Lighting: a Case Study AhmedAli Ahmed Electrical Contracting; feasibility of marketing the product in the Kingdom of Bahrain”

5.3.a Value Proposition Analysis for Solid State Lightings in the UK & Bahrain

To get a strong understanding of the constraints for marketing the product in Bahrain, Value Proposition Analysis was done in three different ways. Consequently, to get a complete picture, Value Proposition Analysis of the product was done in (1)UK (methods: interview & questionnaire) and (2)Bahrain (methods: interview & questionnaire).

As quoted by Woodruff (1997)(2.1.a), the research agrees with next major edge for competitive advantage comes from outward orientation towards the customer, which is achieved by realising and meeting the needs of the customer. This is evident from response received in the questionnaire (from the clients) as to how the clients were contented with

the product and the value added services provided with it; as discussed in the questionnaires 4.2.a and 4.2.b.

In Section 4.2.a (1) and 4.2.b (1); majority of the clients have listed 'Excellent' for the performance of the product; and 'Quality of the Product' & 'Energy Savings' as their next major concern; which implies that the customers for Solid State Lighting in the UK values the product much more than the price (monetary & non-monetary) they pay for it. This supports (2.1.b) Parsumraman's (1997) statement in defining the 'customer's value for the product' as a link to buy the product. That is, something perceived by the customer, rather than objectively determined by the seller. This also moves in lines with Mazumdar(1993) who argues that the customer decision is moved by the benefits associated with the product rather than the price and Lapierre (2000) who suggests willingness to buy the product is greatly prejudiced by the value.

Regarding the Perceived Value (2.1.a&2.1.b) being equivalent to Benefits deducting Sacrifices made through time, energy and money as suggested by Mazumdar (1993); evidence from the survey conducted in UK (4.2.a(1)) reveals that the Perceived value of the product has increased from its pre-purchase Perceived Value.

This proves that the product has a greater utility value as compared to the monetary value of the product. Hence Zeithaml (1998) advocates that Value Proposition is significant for supplier to realise their product and to understand how the product can be enhanced to offer value to the customers giving the supplier a competitive edge over the others.

In section 4.2.b(1), it is shown that the prospective clients in the Kingdom of Bahrain has great interests in the product and the interest that drives them is the uniqueness and it's performance. Product Quality seems to be the highest priority while making the purchase. This lay grounds for the model suggested by Zeithaml (1998) and Mazumdar (1993) as the potential adopter understanding the benefits of the product exceeding the sacrifices made while investigating and while taking up the product/services.

However, this finding does not agree with Parasuraman (1997) who believes that value(s) given up to purchase the product can never even the value of the product.

Conversely, to a certain extent, it disagrees with Mazumdar's (1993) suggestion of price, not being the major factor for purchase of product (2.1.b). This is evidenced by 4.2.a(1)&4.2.b(1), which records a significant population for both in the UK and Bahrain whose main product attribute is price.

The research also disagrees with Lapierre's (2000) agreement on making a deal by the customer in building a relationship with the supplier with time, energy and effort (2.1.b); 4.2.a(1) clearly evidences that certain customers have lost faith in their supplier despite the sacrificial deal made by the customer.

Undoubtedly, the overall research does agree with the general suggestion of increased Customer Value Proposition for the product as the next edge for 'Competitive Advantage' as stated by various authors (2.1.a&2.1.b).

5.3.b Value Proposition Analysis for the services provided by the Case Study Organisation

"Customer value is a customer's perceived preference for and evaluation for those product attributes, attribute performances, and consequences arising from use that facilitate achieving the customer's goals and purposes in use situation." :- Woodruff (1997)

Hence as suggested by Woodruff(1997), Kolter & Philip (2000) and Slater (1997) 'Exceptional Customer Service' is required to have a competitive edge, specially in a competitive market. To develop a comprehension of the constraints to market the product in Bahrain; Value Proposition Analysis of the services provided by the Case Study Organisation was done. As a result, the analysis was implemented in Bahrain by employing my previous experience with the organisation which includes ethnographic & action research; and to attain the latest information on the trends and practices in Bahrain, interview with the director & questionnaire was utilised.

As suggested by Kolter & Philip (2000), a strong rapport must be made between the satisfaction scores and performance. This is evident from my findings in the questionnaire feedbacks from both the countries.

Considering the feedbacks from questionnaire sent to UK 4.2.a(1); it is evident that poor marketing trends along with customer follow-up services can reduce the satisfaction

scores and performance resulting to reduced 'Customer Value'. However, the company continues to be in good shape due to its characteristic niche status for the services it provides. The organisation provides unique products which make the customers return for more unique and customised product (2.1.a&2.1.b).

All the while, considering feedbacks from the questionnaire sent to Bahrain 4.2.b(1); it evidences that increased customer support increases the 'Customer Value'. This could help the organisation to market the Solid State Lighting in Bahrain. As this concept of added 'Customer Value' is backed by various authors such as Parasuraman (1997), Monroe & Kent (1990), Zeithaml & Valarie (1998) and Anderson, Jain & Chintagunta (1993). Hence it is implied that facilitating the customer goals could help retaining customer and sell services/products (2.1.a&2.1.b).

However, Parasuraman's (1997) statement on customer's value perceived by the customer rather than objectively determined by the seller is not true on research lines of investigation. 4.2.b(2) clearly proves that the seller determines the customer value by refining the product/services in customer lines which makes the customer choose the project in the first place.

Disagreements are also made on Woodruff's works that suggested 'Quality would no longer serve as vital component of product'; is also found in the research findings which states that product performance being one of the main criterions for purchase as evidenced in the questionnaire 4.2.b(1) & the interview 4.2.b(2).

Albeit, the research proves that Value added services is crucial and essential to keep customers and to build trust, to make them try new products offered.

5.3.c Suitable Market Segmentation

The lighting industry in Bahrain is a wide industry. Currently, most of the lightings used consumes much more power and wastes much energy as heat compared to Solid State Lightings. Hence, there is a great market which welcomes a new technology such as Solid State Lightings that could be used as an everyday technology.

From 4.2.a(2)&4.2.a(1);the interview and from action research in the UK lighting market, it is found that the Solid State Lighting is placed in a niche product sector which requires additional market targeting and product positioning as suggested by Craven (2002). Observations such as customisation of the products in the UK align to concepts suggested by Kotler et al (2004) regarding the opportunity of the firm (in the segment) to bridge the gap between the customer's customised and general needs (2.3a&2.3b).

As recorded in 4.3 (3); the firm has always been open to new ideas. It has realised profits, growth and newness involved in the sector which agrees with the works of Kolter & Philip (2002). The firm would also positions itself for Architectural Lights, Room Lightings, Garden Lighting, Outdoor Lighting, High-bay Lighting and Designer Lightings (4.5) which supports Doyle & Sterns (2006) idea of positioning of the firm to decide where to compete and the choice of how it would compete (2.3.a, 2.3.b &2.3.c).

In addition to this, Market Analytical tools such as P.E.S.T.L.E and S.W.O.T were also used to understand and realise the perfect product position and segment the Solid State Lighting fits in (4.4.a&4.3.b). This is supports the analysis theory as significant tool in moulding strategies as suggested by Lynch (2006). It also backs the works done by Hill et al (1997) in building line of action by having a target market (2.2.a&2.2b).

Hence, the market position where the product is best suited is found. At the same time, different attributes that would help develop and the different constraints that could retard the market position is also understood with the aid of the analytical tools.

5.4 Overall Conclusions

The research has facilitated the researcher to appreciate Value Proposition Analysis mainly based on two different attributes: Customer and Product. It was found that Customer Value acknowledged with Product Customisation with a differential advantage would help market the Solid State Lighting.

This was achieved by analysing the operational lines of the UK supplier which sells the lighting and by understanding the capacities and capabilities of the Case Study Organisation. Based on different literature as suggested in the literature review, the research methods were designed and refined to cater the research objectives in the best

way. Additionally to validate the research findings, triangulation was done to validate the data attained and to achieve a finite picture of the observations. This was then substantiated with literature suggested by various authors to find its authenticity and claim.

The study compared the functioning of the two companies to contrast the difference on operational lines. This is important to recognise and, realise the necessary strategies required to market the product which may differ its current strategies. Reviews from different clients based on the services / product provided by the both companies that were under consideration was also taken as a feedback, which served as a scope of improvement for the company and which laid the backbone to the study.

AhmedAli Ahmed Electrical Est., acknowledging the various literature suggested along with recommendations offered, should undertake efforts to enhance its functioning capacity and thus develop its potential to market Solid State Lightings as it had already done previously with its Electrical services and Fire Alarm Accessories; resulting to a world class lighting provider.

Albeit, the research proves that Value added services is crucial and essential to keep customers and to build trust; in order to make them try new products offered by the organisation and hence increase their market share.

5.5 Limitations

Although, a deep understanding on Value Proposition was covered, certain limitations with regards to the study were discovered during the course of investigation. For instance, certain companies who were the subjects for questionnaire could have had biased answers to sustain corporate mutual interests. In addition to this, limited knowledge about the clients was obtained due to data protection which limited the full understanding of the nature of the clients. Time constraint had also been a major constraint as gauging Value Proposition would require measuring from different angles and factors. This also limits the extensive scope in practical implications.

Subjects under test were asked to be masked, hence details of the subjects could not be referenced to the reader for further research. Telephonic interviews could also lead to additional errors such as question interpretation and errors due to limited time of response.

Due to observational research, certain information that could be vital for the study could be missed. Ethnographic study was based on directors and staff of the companies; this however, cannot be generalised for every other business entity. Time constraint had also been a major constraint as gauging Value Proposition would require measuring from different angles and factors. This also limits the research's extensive scope in practical implications.

5.6 Opportunities for further Research

Value Proposition Analysis with all its beauty can be further analysed and investigated considering many more variables such as time, resources, geography and trends. Value(s) provided differs from person to person, which in turn divides their interests for the product. For instance, most people would value a product more, which is delivered within a limited time frame at a premium cost which may define its quality. Some others would value the quick returns for the services/product from its monetary value.

From the researcher's quest for works based on 'Value Proposition Analysis', it was found that the concept is less mobilised and hence needs further exploration showcasing different companies and institutions who uses Value Proposition as a major element for strategic decisions. The concept has great un-touched resources waiting to be harnessed in terms of its marketing potential.

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Appendix 1 – Recommendations

The following strategy is suggested for AhmedAli Ahmed Electrical Contracting to market the Solid State Lighting.

Young & Andrew (2004), focuses on finding a new place in the market, by changing policies and rebranding it. This achieved by introducing new/previously neglected attributes or by creating a new market segment. Doyle & Stern (2006) proceeds to propose the strategy as mentioned below.

1. Understanding the background situation
 - a. Background Analysis
 - b. Opportunities and Option
2. Marketing & Financial Objectives
 - a. Current Performance
 - b. Target Performance
3. Marketing Strategy
 - a. Target Marketing (either by creating a segment or customer focussed)
 - b. Differential Marketing
4. Marketing Mix
5. Action Plans
6. Budget
7. Organisational Implications

Lynch (2006) suggests that in making a corporate strategy, we examine a clear distinction between process, content and context in which the key question is “What makes a good strategy?”. Hence, he classifies it as Organisational Level Strategy and Business Level Strategy. For an organisation (specially for small business enterprises) to implement a new business or a niche market, Patten & Dave (1998) strongly suggests Strategic Analysis and the Analysis of Existing Resources in organisational planning. This is then followed by having set targets for the market by understanding all the limitations and the different market constraints. This can either be done by emergent approach or by perspective approach based on the information on the market infatuated by the organisation (Lynch, 2006).

Appendix 2 – Questionnaire - UK

Dear sir/madam,

serialNo. JDMJL01

I have formulated the questionnaire to understand and analyse the value perceived by you or your corporate whilst using the Solid State Lighting (LED Lighting) you purchased from your current lighting supplier. I am pleased to make you aware that by using these products you are significantly reducing your carbon footprint resulting to energy savings.

The information you provide with this questionnaire will be considered strictly confidential and will be used for my research and to improve the performance of the products from your current lighting supplier.

The questionnaire is specifically designed to reduce your labour in answering with direct answers which aids in obtaining the required information for the investigation. It contains 12 simple questions and your honest opinion for each is highly appreciated and recognised.

Many thanks for your co-operation.

Justin V

Instructions –

Please indicate the answers in the brackets provided. Please indicate **A, B, C, D, or E** as your answers for the respective questions in your highlighted answering space. Please complete as far as possible.

Questionnaire

1. *How long have you been using the product/services from your current Lighting supplier?*

A. less than a year **B.** Less than 2 years **C.** Less than 3 years **D.** 3 or more years

Answer { }

2. *How good has the product been able to satisfy your expectations?*

A. Very Good **B.** Fairly Good **C.** Neither Good nor Bad **D.** Not very Good
E. Not Good at all

Answer { }

3. *Before purchasing the product, which of the following product attribute was your highest priority?*

A. Cost of the product **B.** Quality of the product **C.** Energy Savings
D. Performance of the product **E.** Can't Say Answer { }

4. What were your expectations in the performance of the product before point of sale?

- A. Excellent B. Very Good C. Good D. Satisfactory E. Unsure

Answer { }

5. Did you buy the product for a new installation? YES/NO Answer { } (if yes, please skip q.4.1)

4.1 Has the new product been better performing than the previous one?

- A. Definitely Yes B. Probably Yes C. Can't Say
D. Probably No E. No

Answer { }

6. What were your perceptions before purchasing the product?

- A. Extremely Unique B. Slightly Unique C. Unique D. Uncertain
E. Not at all unique Answer { }

7. As of today, what are your perceptions on the product?

- A. Extremely Unique B. Slightly Unique C. Unique D. Uncertain
E. Not at all unique Answer { }

8. How would you rate the quality of lighting?

- A. Very Good B. Fairly Good C. Neither Good nor Bad D. Not very Good
E. Not Good at all

Answer { }

9. Has the light fitting been able to reduce your energy costs?

- A. True B. Somewhat true C. Can't Say D. Not Very True E. Not True

Answer { }

10. Has the product paid back in terms of its utility-satisfaction?

- A. Definitely yes B. Probably yes C. Can't Say D. Probably No
E. No

Answer { }

11. Would you still continue to buy similar products or other range of products of similar quality from your current supplier?

- A. Definitely yes B. Probably yes C. Can't Say D. Probably No
E. No

Answer { }

12. *How would rate the marketing practice adopted by the firm?*

- A. (Excellent) B. (Good) C. (satisfactory) D. (Not bad)
E. (Not Satisfactory)

Answer { }

Further comments on the products are welcome . . . { }

Many thanks for your time and co-operation. Your feedback is valuable.

Justin V

Appendix 3 – Questionnaire - Bahrain

Dear Sir/madam,

serialNo. BAH:AAE01

I have formulated the questionnaire to understand and analyse the value perceived by you or your corporate whilst using the Solid State Lighting (LED Lighting). I am pleased to make you aware that by using these products you are significantly reducing your carbon footprint resulting to energy savings.

The information you provide with this questionnaire will be considered strictly confidential and will be used for my research and to improve the performance of the products from AhmedAli Ahmed Electrical Est.

The questionnaire is specifically designed to reduce your labour in answering with direct answers which aids in obtaining the required information for the investigation. It contains 10 simple questions and your honest opinion for each is highly appreciated and recognised.

Many thanks for your co-operation.

Justin V

Instructions –

Please indicate the answers in the brackets provided. Please indicate **A, B, C, D, or E** as your answers for the respective questions in your highlighted answering space. Please complete as far as possible.

Questionnaire

1. *How long have you been using the product/services from AhmedAli Ahmed Electrical Est. ?*

A. less than a year **B.** Less than 2 years **C.** Less than 3 years **D.** 3 or more years

Answer { }

2. *While purchasing the Solid State Lighting, which of the following product attribute would be your highest priority?*

A. Cost of the product **B.** Quality of the product **C.** Energy Savings

D. Performance of the product **E.** Can't Say Answer { }

3. *What are your perceptions on the performance of the product?*

A. Excellent **B.** Very Good **C.** Good **D.** Satisfactory **E.** Unsure

Answer { }

4. *Would you buy the product for a new installation?*

- A. Definitely Yes B. Probably Yes C. Can't Say D. Probably No
E. No

Answer { }

5. *What are your perceptions on purchasing the product?*

- A. Extremely Unique B. Slightly Unique C. Unique D. Uncertain
E. Not at all unique Answer { }

6. *How would you rate the quality of services provided by AhmedAli Ahmed Electrical Est.?*

- A. Excellent B. Very Good C. Good D. Satisfactory
E. Unsure Answer { }

7. *Has the services provided by the firm been able to meet your expectations?*

- A. True B. Somewhat true C. Can't Say D. Not Very True
E. Not True Answer { }

8. *Has the services provided by the firm paid back in terms of its utility-satisfaction?*

- A. Definitely yes B. Probably yes C. Can't Say D. Probably No
E. No Answer { }

9. *Would you still continue to use services or buy Solid State Lighting products from AhmedAli Ahmed Electrical Est.?*

- A. Definitely yes B. Probably yes C. Can't Say D. Probably No
E. No Answer { }

10. *How would rate the marketing practice adopted by the firm?*

- A. (Excellent) B. (Good) C. (satisfactory) D. (Not bad)
E. (Not Satisfactory) Answer { }

Further comments on the products are welcome . . . { }

Many thanks for your time and co-operation. Your feedback is valuable.

Justin V

Appendix 4 – Answers to UK Questionnaires

Q1: Majority of the clients subjected to the survey were involved had less than 2 years of contact with the company. As the initial part of the questionnaire, focus was much laid on the performance of the product and it's perceptions.

Q2: Regarding product satisfaction, 20% regarded it to be 'Very Good' while a 70% regarded it to be 'Fairly Good' with 20% of being not sure of their utility with the product.

Q3: On asking the priority of the product attribute before the purchase of the product, 10% listed 'Cost of the Product', while a 30% listed 'Quality of the product', and 40% for 'Energy Savings', keeping 'Performance of the Product' at 20%.

Q4: On asked to rate their expectations on the performance of the product, around 80% of the subjects mentioned 'Excellent' while 15% mentioned 'Good' and a mere 5% as recorded 'satisfactory'.

Q5: It has also been found that a majority of the subjects (85%) used the product for 'First Installation' rather than replacing the previous one.

Q6: When asked on the perceptions of the product before the purchase, there was a mixed opinion, rather than a uniform opinion on the perceptions. 20% ticked 'Extremely Unique' and 'Slightly Unique', while 30% chose 'Unique' and 'Uncertain' about the uniqueness.

Q7: However, when asked about their perceptions as of today, based on their usage, 70% chose 'Extremely Unique' while 20% 'Slightly Unique' and a 10% 'Unique'.

Q8: When asked to rate the quality of the lighting, 80% of them recorded it 'Very Good' while a 15% recorded 'Fairly Good' and 5% as 'Neither Good nor Bad'.

Q9: While the question about their energy consumption raised, about 10% said 'True' while a majority(75%) mentioned 'Somewhat True'. Albeit, 15% was not 'Sure' of their reduction of energy costs.

Q10: In the question of utility satisfaction, 5% chose 'Definitely Yes', whereas 40% said 'Probably Yes'. Although, there were 25% who weren't certain about it.

Q11: Regarding their current supplier, 20% mentioned 'Definitely Yes' and 40% mentioned 'Probably Yes' when asked about continuing their purchase from their current supplier. However, 22% were Unsure and 18% said 'Probably No'.

Q12: While asked about the marketing practices adopted by the firm, 10% mentioned 'Excellent', 40% mentioned 'Good' and 40% 'Satisfactory'. Although, 10% did mention it as 'Not Bad'

Appendix 5 – Answers to Bahrain Questionnaires

Q1: Majority of the clients subjected to the survey involved had more than 3 years of association with the firm with 33% less than 2 years and 77% more than 3 years.

Q2: When asked to rate the highest priority of product attribute while purchasing the Lighting, 60% mentioned that the quality of the product, 10% each mentioned that cost and energy savings would be their priority. However, 20% did mention that performance of the product is their main concern while purchasing the product.

Q3: On asked to rate their perceptions on the performance of the product, around 10% of the subjects mentioned 'Excellent' while 10% mentioned 'Very Good', 63% mentioned 'Good', 7% recorded 'satisfactory' and 10% cited 'unsure'.

Q4: Regarding the installation, 73% mentioned that it was for new installation, while 23% mentioned the 'probable yes'. However, 4% did mention that they weren't sure.

Q5: When asked on their perceptions on purchasing the product, there was a diversity in opinions. 65% cited 'Extremely Unique' and 13% 'Slightly Unique', while 10% chose 'Unique' and 5%'Uncertain' about the uniqueness.

Q6: Regarding the services provided by the firm, 52% of the subjects mentioned 'Excellent' performance while 30% quoted 'Very Good' and 18% recorded 'Good'.

Q7: With regards to meeting the expectations of the clients, 66% cited 'True', 30% cited 'Some What True' while a mere 4% did mention their uncertainty for the same.

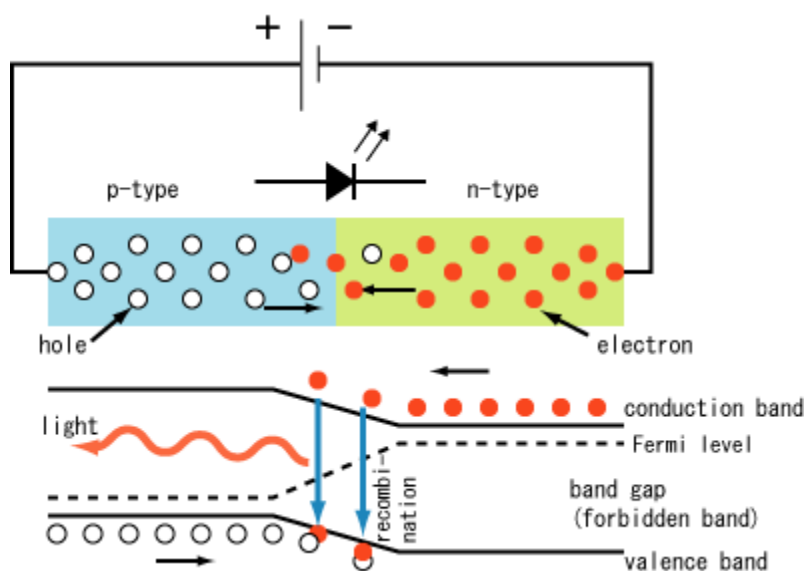
Q8: In the question of utility satisfaction for the services provided by the firm, 78% chose 'Definitely Yes', while 22% said 'Probably Yes'.

Q9: When asked on if the client would continue to buy product/services from firm, 65% cited 'Definitely Yes', while 30% said 'Probably Yes' with 5% 'unsure'.

Q10: While asked about the marketing, 33% mentioned 'Excellent', with 55% citing 'Good' and 12% quoting satisfactory.

Appendix 6 – Basic Working of an LED

Light Emitting Diode is a forward biased diode. When the diode is forward biased, the electrons combine with holes giving out energy in the form of light energy. This is known as electroluminescence.



Courtesy: Wikipedia.org

<http://en.wikipedia.org/wiki/File:PnJunction-LED-E.PNG>

Organic Light Emitting Diodes - Future of LED Technology

OLED is an emissive electroluminescent layer with organic compounds which emits light. This is the latest technological development in flexible-picture displaying monitors, computer monitors, television sets, portable devices such as mobile phones and information display systems. Although, they emit less light per unit area than inorganic solid state LED lightings, they are biodegradable and hence completely recyclable. They are broadly classified based on their composition of small molecules and those with polymers. However, OLEDs work based on charged mobile ions present in the thin layer (Baldo, M. A. Lamansky, Burrows, P. E.; Thompson, M.E; Forrest, S. R., 1999).